Wyoming Bean Commission

The Wyoming Bean Commission was formally established in the 2015 Legislative session and the commission members were initially appointed by Governor Mead. The Bean Commission is funded through assessments on both growers and handlers and is housed within the Wyoming Department of Agriculture. The purpose of the Bean Commission is to: Conduct or contract for scientific research to discover and develop improved varieties, production techniques and end-use products; Conduct or contract for programs of consumer education and market development; Disseminate information on dry edible beans based on scientific research; Study state and federal legislation with respect to matters concerning the dry edible bean industry; Make grants to research agencies for financing special or emergency studies, or for purchase or acquisition of facilities necessary to carry out the purposes of the commission; Cooperate with any local, state or nationwide organization or agency engaged in work or activities similar to or related to those of the commission, and enter into contracts with those organizations or agencies for carrying on joint programs.

2015 ACTIVITES

Title 11; Chapter 50- Bean Research legislation was created by the Wyoming Legislature and became effective July 1, 2015 allowing for the Wyoming Bean Commission to begin collecting money through assessments paid by both growers and handlers of dry beans in Wyoming.

The first meeting for the Bean Commission was held on December 7 & 8, 2015 at the Wyoming Department of Agriculture's main office in Cheyenne.

The initial members of the Bean commission were appointed by Governor Mead:

Beau Fulton – Grower, Park County
Pascual Aguilar – Grower, Big Horn County
Wayne Hort – Grower, Goshen County
Jerrod "Butch" Lind – Grower, Platte County
Jeff Chapman – Handler, Kelley Bean Company
Lynn Preator – Handler, Preator Bean Company
Hank Uhden – Ex-Officio member, Wyoming Department of Agriculture

2015 Meeting minutes

Wyoming Bean Commission
Organizational Meeting
Wyoming Dept. of Agriculture
2219 Carey Avenue, Cheyenne
December 7 & 8, 2015

Minutes:
Monday, December 7, 2015
Members Present:
Jeff Chapman (handler) of Goshen County
Pascual Aguilar (grower) of Big Horn County
Lynn Preator (handler) of Big Horn County
Beau Fulton (grower) of Park County
Wayne Hort (grower) of Goshen County
Jerrod Lind (grower) of Platte County
Hank Uhden (ex-officio member from the Wyoming Dept. of Agriculture)
Others Present:
Doug Miyamoto, Director, Wyoming Dept. of Agriculture
Stacia Berry, Deputy-Director, Wyoming Dept. of Agriculture
Julie Cook, Administration Manager, Wyoming Dept. of Agriculture
Dale Heggem, Senior Inspection Specialist, Wyoming Dept. of Agriculture
Kim Gallegos, Accountant, Wyoming Dept. of Agriculture
Keith Kennedy, Crop Research Foundation of Wyoming
Transaction of Business:
Meeting was called to order at 8:55 am by Ex-Officio Member Hank Uhden.
Members introduced themselves.
Hank Uhden opened nominations for the position of Commission Chairman.
Lynn Preator nominated Beau Fulton, Second by Wayne Hort.
Vote All in Favor - Passed.
Chairman Fulton opened nominations for the position of Commission Vice-Chairman.
Jarrod Lind nominated Jeff Chapman, Second by Wayne Hort.
Vote All in Favor - Passed.
Chairman Fulton requested Approval of Agenda. Wayne Hort moved to approve the agenda, Second by Jeff Chapman. Discussion - Lynn Preator requested to add 'U.S. Dry Bean Council, and Dry Bean Consortium'. Items accepted and placed onto agenda. Vote all in Favor - Passed.
Approval of Minutes. Being no previous minutes, agenda item was noted and no action taken. **Statute Overview, Commission responsibilities.** Hank Uhden reviewed enacting statutes W.S. § 11-50-101 through 108 with the Commission. Review included all sections of

the law focusing on the Commission Duties. Short discussions included: 1) statute interaction with the Crop Research Foundation of Wyoming; 2) Assessments and Refunds; 3) Bonding requirements and amount required.

At 9:40 Commission recessed for break, reconvened at 9:55 am.

Establish policies for procedural board duties, Rules of Order. The Commission was briefed on recommendations for procedural conduct of business. Commission concurred that Roberts Rules of Order are adopted for transaction of Commission business. A simple majority Quorum of members present is adopted for action items requiring a vote; Policies, Regulations, Statutes were covered on how they interact with each other legally; Executive Sessions were discussed, noting Commission may enter executive session for items of business regarding Personnel or Confidential Business Information, no votes to take place in executive session, votes must be conducted when convened in public; Conference calls to conduct business were discussed.

Policy Item: Roberts Rules of Order are adopted for the formal transaction of business.

Policy Item: A simple majority Quorum of members present is adopted for action items requiring a vote.

Policy Item: Commission established policy that the Commission will not take action or vote on items unless one Commission Handler member is present on the call.

Board & Commissions Training. Hank Uhden briefed the board on the Governor's Boards and Commissions training located at: http://governor.wyo.gov/boards-and-commissions/wyoming-board-training. Julie Cook and Kim Gallegos covered the State of Wyoming Travel Procedures and Reimbursements & Forms (Travel voucher, Wolfs payment system).

Formal Rule Making Procedures Overview. Hank Uhden briefed the Commission of the State of Wyoming procedures for the formal rule-making process and timelines. Discussion included gathering of public & industry input into the draft regulations.

Review Rules Draft. Hank Uhden reviewed the draft Commission regulations by each section.

Lunch. At 11:55 am, Commission recessed. Reconvened at 12:55 pm.

Review Rules Draft. Hank Uhden continued the review of the draft regulations. Through the review process a number of changes were discussed, and the draft was amended upon Commission consensus.

Fiscal Procedures. Board Discussion of Remittance and Refunds Procedures. Hank Uhden briefed the Commission on the forms drafted for handlers remitting assessments to the Commission; and for growers to request refunds. Two scenarios were presented on how growers can be reimbursed when requesting a refund: 1) Separate Commission bank account with an established amount balance to remain in the account, and checks written and signed by commission members and the department at that time; -and- 2) Payment to the Grower through the State of Wyoming Wolfs payment system requiring growers to complete vendor forms, and payment either by state issued check or Electronic Funds Transfer (EFT) directly into a growers bank account.

Julie Cook was requested to address those two scenarios before the commission. Julie Cook briefed the Commission in detail on how each of those processes work within the state

government system, and the pros / cons of each process. The Commission members asked a number of questions: how the current process works with the Wyoming Wheat Commission; who would sign the checks under scenario 1) above; what information is public or can be made public.

The Commission deliberated on both scenarios and discussed amongst themselves the pros and cons for each. No decision was reached on which direction the Commission wanted to proceed. Formal action on this item was postponed for vote until reconvening Tuesday morning.

Break. At 2:30 pm, Commission recessed. 2:45 pm Commission reconvened.

Rules Draft: (copy attached to these minutes). Hank Uhden presented an edited draft of the regulations to the Commission. The Commission reviewed the new draft, noting three edits and by consensus moved the regulations forward for Attorney General Review.

Fiscal Procedures. Board Discussion of Remittance and Refunds Procedures. The Commission further reviewed the forms used for submitting assessments and requesting refunds. Both forms were amended through Commission discussion. Motion to approve the forms as amended made by Wayne Hort, second by Jerrod Lind. Motion passed.

U.S. Dry Bean Council. [added agenda item]. Lynn Preator provided an overview of the U.S. Dry Bean Council; who the council is; dues structure; members thereto (growers / dealers / corporate members). No action taken.

Dry Bean Consortium. [added agenda item]. Lynn Preator provided an overview of the proposed Dry Bean Consortium between Idaho, Colorado, and Wyoming. The Consortium in concept will be comprised of University research units, Bean Commissions, and State government. The goal is to utilize combined resources from each state to conduct research on dry beans, develop new varieties, and provide a seed base for growers relevant to their geographical farming operations. Consortium is developing a grant request through University of Wyoming / Colorado State University / Idaho State University. The grant request is for federal funding available through a nationwide grant administered by the Utah Dept. of Agriculture (These federal funds under the guidelines must be administered by a state dept. of agriculture). Consortium meetings are open to the public, recommendation was made that Wyoming Bean Commission consider attending to represent industry. Keith Kennedy made the request for the Commission to consider nominating and seating two Wyoming Bean Commission members to the Crop Research Foundation of Wyoming, and those two members then further represent the industry on the Consortium. No Action taken.

Board Comment. None

Public Comment. None

Meeting was recessed for the day at 4:00 pm.

Tuesday, December 8

Members Present:

Jeff Chapman (handler) of Goshen County
Pascual Aguilar (grower) of Big Horn County
Lynn Preator (handler) of Big Horn County
Beau Fulton (grower) of Park County
Wayne Hort (grower) of Goshen County

Jerrod Lind (grower) of Platte County
Hank Uhden (ex-officio member from the Wyoming Dept. of Agriculture)

Others Present:

Dale Heggem, Senior Inspection Specialist, Wyoming Dept. of Agriculture
Ted Craig, Specialty Crop Grant Program, Wyoming Dept. of Agriculture
Keith Kennedy, Crop Research Foundation of Wyoming

Transaction of Business:

Call to Order. Chairman Fulton called the meeting to order at 8:30 am.

Questions from previous day? None

Continue discussion on fiscal procedures. Board Discussion of Remittance and Refunds Procedures. Review & Adopt Remittance and Refund Forms. Chairman Fulton opened the discussion regarding how the Commission wished to issue refunds when requested. Discussion included a review of the previous day's discussion regarding check procedures, which Commission members or have all members as signatories, or utilize the State of Wyoming Wolfs payment system. Pros and Cons of each scenario were further discussed, noting that whichever method the Commission chose to adopt, it could be reviewed at a later date and changed if needed. Motion made by Lynn Preator to utilize the State of Wyoming Wolfs payment system for issuing refunds, Second by Jeff Chapman, Motion passed. **Policy Item:** Before refunds are issued through the Wolfs payment system, all Commission members will receive from the Department a spreadsheet listing who is requesting refund and refund amount. Commission will agree to issue refund payments based on two (2) commission member's approval.

Handler Audits & Verification of payment of assessments. Commission members were briefed on how the Department currently conducts audits of grain warehouses and verification of assessments collected for the Wyoming Wheat Commission. Noted in discussion was the recent closure of Yellowstone Bean Company and reconciliation of that facility. Dale Heggem outlined on how he conducts audits and what type of audits routinely conducted. Two types of audits are conducted: 10% random audit of warehouse tickets & receipts -or- 100% audit. He said that he would conduct an audit per direction of the Commission. The Commission further discussed what type of audit would be best suited for their purposes. The Commission agreed that a 10% audit falls within the routine inspection activities of the Department, and it models after the audit procedures of the Wyoming Wheat Commission, therefore the Department is directed to conduct a 10% audit, unless if otherwise directed or circumstances warrant a 100% audit. Motion was made by Wayne Hort for the Commission to contract with the Wyoming Department of Agriculture to conduct Handler Audits & Verification of payment of assessments, amount not to exceed $500.00, with Chairman Beau Fulton as signatory to that contract. Second by Lynn Preator. Further discussion by the Commission included that they understand that the Department would initiate a 100% audit if the circumstances require it, and that the Department would request additional monies to cover expenses in the event of unique or out of the ordinary situations such as those requiring a more in-depth, extra travel / time, or out-of-state audit. Motion passed.

Upon final signature of the Contract, the Commission requested that Dale Heggem plan to visit every handler facility of Wyoming beans before June 30, 2016.
Discussion returned to the closure of Yellowstone Bean Company (YBC) and if grower assessments had been paid as the law took effect 2 months prior to the final closing of the books on the facility. No grower assessments were made by YBC. Chairman Fulton agreed to draft a letter on behalf of the Commission to YBC requesting payment of the grower assessments based on the known remaining accounts after July 1, 2015.
Chairman Fulton agreed to develop Commission letterhead for this purpose. Discussion included who is authorized to use / mail commission correspondence on commission letterhead.
Policy Item: Formal correspondence by any Commission member on behalf of the Commission using Commission letterhead shall be approved by the Commission members before it is sent.
Future research needs - Industry Feedback. The Commission discussed the following items under this agenda topic. 1) Variety trials and the need to get started with field trials the first year; 2) Dry Bean Consortium; 3) Ted Craig provided an overview of the specialty crop program, funding availability, application process, performance period, expectation of when funding would be made available; 4) U.S. Dry Bean Council: January 26-27, 2016, Washington, D.C. Lynn Preator is attending for the Rocky Mountain Bean Dealers. Lynn also will check with the council to see if they would sponsor one or two Commission members to attend; 5) Variety trials & research protocols, small and large plot, end user quality; 6) Recommendation for all the Wyoming Bean Commission Members to attend the Crop Research Foundation of Wyoming meeting starting at 1:00 pm that same day. Jeff Chapman moved that Lynn Preator and Jerrod Lind be appointed to the Crop Research Foundation of Wyoming board of directors. Motion passed.
Board Comment. Jeff Chapman requested Hank Uhden to draft a press release regarding the actions and discussions that took place during the first meeting of the Commission.
Next meeting date / place / time.

- January 14, 2016
- Casper, WY
- Tentative: UW Extension, 2011 Fairgrounds Road
- 9 am - 12 Noon

Public Comment. None.
Meeting was adjourned at 10:55 am.

2016 Activities

Five meetings were conducted over the course of the year to develop internal policies and provide for the rulemaking process. The Bean Commission applied for and received a USDA "specialty crop grant" of $17,100 that is administered by the WDA as well as reviewed and approved five grants totaling $15,000 from researchers at the University of Wyoming.

The five projects funded were:
$3,500 for Cultural Methods for Improving Direct Harvest Efficiency in Dry Edible Beans
$3,500 for Late Season Weed Control in Dry Beans
$3,500 for Screening Dry Bean Genotypes for Drought Tolerance in Wyoming
$2,500 for Dry Bean Commission Research Proposal Producer Survey
$2,000 for Dry Bean Soil Borne Disease Management with In-Furrow Fungicides

2016 Meeting minutes

Wyoming Bean Commission
Natrona County Extension, 2011 Fairgrounds Road, Casper, WY
January 14, 2016

Minutes:

Members Present:

Jeff Chapman (handler) of Goshen County
Pascual Aguilar (grower) of Big Horn County
Beau Fulton (grower) of Park County
Wayne Hort (grower) of Goshen County
Hank Uhden (ex-officio member from the Wyoming Department of Agriculture)

Members Absent:

Lynn Preator (handler) of Big Horn County
Jerrod Lind (grower) of Platte County

Others Present:

Dale Heggem, Senior Inspection Specialist, Wyoming Dept. of Agriculture
Ted Craig, Specialty Crop Grant Program, Wyoming Dept. of Agriculture
Mike Moore, Wyoming Seed Certification, University of Wyoming
Mike Forman, Wyoming Crop Improvement Association, Powell

Transaction of Business:

Meeting was called to order at 9:02 am by Chairman Beau Fulton.

Members and guests introduced themselves.

Chairman Fulton requested Approval of Agenda and Approval of December 7 & 8, 2015 Meeting Minutes. Jeff Chapman motion for approval, Wayne Hort seconded. Motion passed.

Specialty Crop Grants:

Ted Craig provided a detailed overview of the specialty crop program, funding availability, application process, expectation of when funding would be made available. $24,500 is potentially available; grant deadline will be in April, 2016 with funding coming available October 2016. Mike Moore updated the Commission on the dry bean nursery at the Powell UW Research Farm and the activities taking place to date. Currently the bean nursery research has been unfunded and limited in scope.

University of Wyoming / Variety Trials: Dr. Bret Hess, UW participated in discussion with the Commission via conference phone. Dr. Hess updated the Commission on current bean research taking place and estimated costs: Dr. Kniss: Direct harvest of beans - $40K; Dr. Stump: Pesticides $10K -$15K; Dr. Heitholt: Variety work, water needs, drought tolerance, $10K - $15K. Research currently funded from producer grants with a dollar for dollar match. The Commission entered into discussion with Dr. Hess, Mike Moore, and Ted Craig on what it will take to develop future bean research potentials, and specialty crop grant utilization. It was agreed to bring Dr. Jim Heitholt, Plant Sciences Dept. Head into the discussion as Dr.

Heitholt has a high interest in bean research, and to open communications with the University to develop a specialty crop grant research proposal. It was agreed that any Bean Commission members in attendance at the Wyoming Crop Improvement Association meeting in Powell in February would plan to discuss research needs with Dr. Heitholt, Dr. Hess, and Mike Moore. Additional ideas may be generated during the WCIA bean committee meeting. Mike Forman, WCIA conveyed to the Commission that he has one research idea he wishes to bring forward to the Commission from a grower's aspect.

Break. Chairman Fulton called for a short break at 10:10 am. Meeting reconvened at 10:30 am.

Administrative:

Audit Contract with WDA - Status. Hank Uhden updated the Commission on the status of the audit contract with WDA. Internal and attorney general review recommended changes to the contract, and those changes were made to the copy for signature. The contract was presented to the Chairman for signature. Contract signed on behalf of the Commission by Chairman Fulton.

Draft Commission Budget. The Commission was provided copies of the budget as developed for the 2016 Legislative session.

Final review of assessment and refund forms. One minor edit was noted for the grower refund form. Dale Heggem will make that noted edit and resend the form out. Wayne Hort motioned approval, Jeff Chapman seconded. Motion passed, the Commission formally approved the Assessment remittance form and the grower refund form.

Review / approval of letter to Yellowstone Bean Company. Chairman Beau Fulton read the draft letter to YBC. The letter is to request remittance of assessments of grower bean at the time of sale and prior to their official closing of business. Chairman Fulton will send the draft letter to Hank Uhden for final formatting and delivery to YBC.

Update on rule-making process / Attorney General's rule review & comments. Hank Uhden briefed the Commission on the status of the rules. The proposed rules were sent to the Attorney General's office for review and comment. As of January 14, 2016 nothing has been returned from the AGs office. No further action.

Formal adoption of Commission policies. The Commission reviewed the draft policies. Jeff Chapman motion approval & adoption, Wayne Hort seconded. The Commission formally adopted the policies as attached.

Refunds were briefly discussed. One refund has been formally submitted to the Department, the refund cannot be made as the handler has not submitted the grower assessments to the Commission.

Public Communications / Newsletter / Social Media - Hank Uhden. Brief discussion covered topics of letterhead development, logo development, newsletters, news articles, and use of social media such as Facebook. The Commission by consensus agreed that the Commission should have a logo for use on letterhead, and other forms of public communication; they further agreed that Hank U. should develop a Facebook page for the Commission. Websites were discussed as well, and the pros/cons to using websites and Facebook. Mike Moore said he would provide information back to the Commission on website development, notably since the Wheat Commission and Seed Certification all utilize

similar tools. Hank Uhden stated he would ask the WDA public information officer to assist in developing 2 - 3 drafts of a Wyoming Bean Commission logo.

Reports:

U.S. Dry Bean Council. Nothing to Report.

Dry Bean Consortium. Hank Uhden asked Mike Moore to provide detailed background on the consortium between the universities of Idaho, Colorado, and Wyoming. Mike Moore briefed the Commission on the status of the consortium, and future research. The consortium has applied for a national grant to initiate research. Mike M. also provided discussion on how the Commission can facilitate research with the consortium.

Nebraska Dry Bean Council. Hank Uhden briefed the Commission on recent communication from the Nebraska Dry Bean Council -and- of his attendance to the Nebraska Bean Day hosted by the NDBC. Hank U. covered what topics were discussed at the bean day, and that the Nebraska Council wanted to meet with the Wyoming Bean Commission to open communication, and to discuss possible future research and ways that the two commissions can work together on common goals. The NDBC will be invited to the next full meeting.

Commission Comment / Public Comment. Public congratulations were provided on the Commission's start-up and the business conducted to date. Next meeting was discussed, topics to include rules status and specialty crop grant. Meeting likely to take place via conference call, Time & Date to be determined. Hank U. conveyed that 2016 is the year of the pulse crops and that there is a global bean marketing initiative taking place. More information including marketing tools is available at www.iyp2016.org

Meeting was adjourned at 11:58 am.

Wyoming Bean Commission Policies:

Adopted: January 14, 2016

Wyoming Bean Commission

The Wyoming Bean Commission hereby formally adopts the following policies:

Conduct of Business:

1. Roberts Rules of Order are adopted for the formal transaction of business.
2. A simple majority Quorum of members present is adopted for action items requiring a vote.
3. Conference Calls: The Commission will not take action or vote on items unless at least one Commission Handler member is present on the call.

Refunds:

1. Before refunds are issued through the Wolfs payment system, all Commission members will receive from the Department a spreadsheet listing who is requesting refund and refund amount. Commission will agree to issue refund payments based on two (2) commission member's approval.

Communications:

1. Formal correspondence by any Commission member on behalf of the Commission using Commission letterhead shall be approved by the Commission members before it is sent.

Wyoming Bean Commission
Laramie AG6014; Powell, NW College ORB 137;
Torrington, Lincoln Community Center, Rm. 153.
February 29, 2016
Video Conference:

Minutes:

Members Present:

Jeff Chapman (handler) of Goshen County
Pascual Aguilar (grower) of Big Horn County
Lynn Preator (handler) of Big Horn County
Beau Fulton (grower) of Park County
Wayne Hort (grower) of Goshen County
Jerrod Lind (grower) of Platte County
Hank Uhden (ex-officio member from the Wyoming Dept. of Agriculture)

Others Present:

Bret Hess, UW
Andrew Kniss, UW
Gustavo Sbatella, UW
Jim Heitholt, UW
John Tanaka, UW
Bill Stump, UW

Transaction of Business:

Meeting was called to order at 2:15 pm by Chairman Beau Fulton.

Dry Bean Consortium:

Bret Hess, UW provided an update on the Dry Bean Consortium. Brief discussion included consideration of providing funding to the Consortium in the amount of $5,000. No action taken.

Review of University of Wyoming bean research & producer survey proposals:

Five (5) proposals were presented by UW research staff. Copies Attached.

Commission Discussion of Proposals:

Commit funding to one year intervals. Reports in December, no indirect costs to be paid.
The Commission agreed to fund the proposals as follows:

- Three thousand, five hundred dollars ($3,500) for Cultural Methods for Improving Direct Harvest Efficiency in Dry Edible Bean;
- Three thousand, five hundred dollars ($3,500) for Late Season Weed Control in Dry Beans;
- Three thousand, five hundred dollars ($3,500) for Screening Dry Bean Genotypes for Drought Tolerance in Wyoming;
- Two thousand, five hundred dollars ($2,500) for Dry Bean Commission Research Proposal Producer Survey;
- Two thousand dollars ($2,000) for Dry Bean Soil Borne Disease Management with In-Furrow Fungicides.

Lynn Preator Moved to Approve, Second by Jarrod Lind. Motion Passed.

Specialty Crop Grant:
Brief discussion and update on the specialty crop grant. Bret Hess said he would be willing to put the grant together to include the research projects (less the producer survey) as listed above. Grant application is through the Specialty Crop Grant, administered by Ted Craig w/ the WY Dept. of Agriculture.
Next Meeting Date via Video Conference:
April 18th, 8 am.
Adjourn: 4:55 pm.

Wyoming Bean Commission
Video Conference
April 18, 2016

Laramie – AG C137
Powell – Northwest College, ORB 137
Torrington – Eastern Wyoming College, Tebbet 252
Minutes:
Members Present:
Lynn Preator (handler) of Big Horn County
Beau Fulton (grower) of Park County
Jerrod Lind (grower) of Platte County
Hank Uhden (ex-officio member from the Wyoming Dept. of Agriculture)
Others Present:
Bret Hess, UW
Mike Moore, UW
Ted Craig, WDA
Matt Nabor, Powell Tribune

Agenda 8:00-10:00 a.m.
Call to Order - Chairman Fulton
Introductions: Members / Guests
Approval of Agenda
Budget Overview
Specialty Crop Grant Application - Ted Craig, WDA / Bret Hess, UW
Adoption of the Wyoming Bean Commission Indirect Costs Policy
Approval of the Bean Commission Contract w/ UW Experiment Station Projects
Dry Bean Consortium Funding / Dry Bean Council
Wyoming Bean Commission Rules
Approval & Move onto formal rule-making process
Other Business:
Facility Audit by Dale Heggem, WDA
Letter from Grower Harrison

Promotion of Commission
Booth at WY State Fair
Brochures / Marketing Materials
Display
Board Comment / Public Comment
Adjourn

Transaction of Business:

Meeting was called to order at 8:15 am by Chairman Beau Fulton.

Specialty Crop Grant:

Bret Hess, UW provided an update on the Specialty Crop Grant. Expectation that it will take up to 6 months to receive confirmation of approval. No action taken.

Adoption of the Wyoming Bean Commission Indirect Costs Policy:

Hank Uhden, WDA & Bret Hess, UW provided background on the revisions to the UW indirect costs policy. Draft Commission policy was presented. Motion to Approve by Lynn Preator, Second by Jarrod Lind. Motion passed.

Specialty Crop Grant:

Ted Craig, WDA arrived to meeting and provided the following: Approval of grant will be by USDA and WDA. Discussion included the three different types of specialty crop grants, the process and backgrounds on each type of grant. Bean Commission grant will be sent to USDA for approval, then onto WDA for contract, approximately it will be in May till we know of its acceptance / approval. Commission should plan a May meeting to coincide with the grant finalization / signatures. Ted Craig will let Commission know of any other bean research grant applications as well (if any) for their concurrence, support, approval.

Approval of the Bean Commission Contract w/ UW Extension Research Projects:

Commission has copy of contract. Motion to approve Lynn Preator, second by Jarrod Lind. Motion passed.

Dry Bean Consortium Funding / Dry Bean Council:

Lynn Preator updated the Commission on the Dry Bean Council and its invitation for the Wyoming Bean Commission for membership. Dues are based on production levels in each state, for Wyoming that would equate to about $8,000 annually for dues. Two meetings per year, next meetings are San Diego, CA and Washington, D.C. National council involves itself in the political realm (farm bill), international marketing, research. Lynn P. will invite Executive Director, Rebecca Bratter from the USDBC to be on the next meeting agenda to talk about the council and what the benefits are for membership.

Consortium funding was next discussed. Hank Uhden, WDA updated the board on its past discussion regarding the consortium. Motion was passed to fund the consortium in the amount of $5,000, motion passed, but was rescinded for further discussion at the next meeting to allow all Commission members to participate in the discussion for funding.

Wyoming Bean Commission Rules:

Commission has copy of proposed rules. Motion to approve the rules and move them onto the formal rule-making process by Lynn Preator, second by Jarrod Lind. Motion carried.

Other Business:

The Commission was updated on the following: Facility Audit by Dale Heggem, WDA; Letter from Grower Harrison; Promotion of Commission through a Booth at WY State Fair, Brochures / Marketing Materials, Display. Hank U. will research the possibility of obtaining a roll-up display for the Commission, and having brochures / promotional materials available for the Dept. of Ag booth at the WY State Fair. Mike Moore, UW updated the Commission on website development.

Board Comment / Public Comment:

Powell Field Day is July 19th. Mike Moore/Bret Hess offered an invite for the Commission to attend the field day, and have a meeting at that time as well.

Next Meeting Date/Time: Thursday, May 12th at 2:00 pm – 4:00 pm.

Adjourn. 9:48 am.

Wyoming Bean Commission
OVN Conference
Thursday, May 12, 2016

Powell – Northwest College, ORB 137
Torrington – Eastern Wyoming College, Tebbet 252
Laramie – College of Ag C, Room 137

Minutes:

Members Present:

Lynn Preator (handler) of Big Horn County
Beau Fulton (grower) of Park County
Jerrod Lind (grower) of Platte County
Jeff Chapman (handler)
Hank Uhden (ex-officio member, Wyoming Dept. of Agriculture)

Others Present:

Bret Hess, UW
Mike Moore, UW
Ted Craig, WDA
Matt Nabor, Powell Tribune

Agenda

2:00 - 4:00 p.m.
Call to Order - Chairman Fulton
Introductions: Members / Guests
Approval of Agenda
Specialty Crop Grant Update - Ted Craig, WDA / Bret Hess, UW
Bean Consortium
CSU - Slow darkening bean varieties - Mike Moore, UW
WY Bean Commission Funding
Consortium Meeting, June 7th, Denver, CO
Dry Bean Council - Lynn Preator

Updates:

Rules
Powell Research Center Field Day, July 19th
Promotional: Website, Brochure
Public Comment
Board Comment
Adjourn

Transaction of Business:

Meeting was called to order at 2:08 pm by Chairman Beau Fulton.

Specialty Crop Grant Update:

Ted Craig, WDA / Bret Hess, UW. USDA approved the grant in the amount of $17,100. The contract MOU is at the Attorney General's office for review, approval and signature. Bret H. reported that the grant amount effectively doubles the Bean Commission's commitment. The Commission's funds will go directly to the projects. Researchers are ramping up and getting their projects lined out. Ted C. reported that there are another three specialty crop grant applications submitted by outside organizations for funding. Ted will forward those applications onto the Commission, allowing the Commission members to review and comment on the applications.

Bean Consortium:

CSU - Slow darkening bean varieties - Mike Moore, UW. Colorado State University was offering two slow darkening bean lines. The Consortium wanted to bid, however Mark Brick w/ CSU asked if there was interest in the Consortium would be willing to enter into a non-exclusive growing agreement. Consortium put together a bid, but pulled it back after CSU brought up the non-exclusive grower agreement, which opens the lines to many growers. The price offer by the Consortium was $5,000 per line upfront (total $10,000); Plant Variety Protection $5,000 per line (total $10,000); Split on royalties at $2.00 per hundred weight. It was recently learned that there are two slow darkening lines coming out of North Dakota and Canada. Consortium may need to rethink its position on the CSU lines based on that information.

WY Bean Commission Funding. Jarrod Lind suggested that the Commission hold back for now on providing funding to the Consortium. Jeff C. and Lynn P. both concurred that the Commission should wait.

Consortium Meeting, June 7th, Denver, CO. Meeting date / location announced.

Dry Bean Council:

Lynn P. provided an email from the U.S. Dry Bean Council that outlined their primary functions, such as marketing, promotion, research. Dues vary but are based on the previous year's production. For Wyoming, that would amount to be about $8,000 annually.

Updates:

Rules. Formal rules packet went to Governor's office Special Council for review / approval.

Powell Research Center Field Day, July 19th:

Commission is invited. Consortium may attend and meet as well on that day. Suggestion to have the Commission be placed on the Board of Ag agenda to provide an update on the Wyoming Bean Commission. If Commission members cannot make the Powell field day, the SAREC Field Day at Lingle is on August 25th.

Promotional: Website, Brochure:
Draft brochure was provided for Commission review. Request was made of the Commission members for a biography and picture to use on the Bean Commission's website.
Public Comment:
None
Board Comment:
Question from the Chairman if Hank U. has heard anything from the Governor's office regarding the letter from the grower who had voiced concerns regarding the Commission. Response was that there has not been anything expressed from the Governor's office. The Commission felt it necessary that it provide a response to the grower, so Hank U. will draft a letter on the Commission's behalf.
Adjourn:
Meeting adjourned at 3:25 pm.

Wyoming Bean Commission
Conference Call
3:30 p.m.
Monday, August 8th, 2016

Minutes:
Agenda:
Call to Order: Chairman Fulton
Roll Call & Quorum announced
Summary Review of Rules: Hank Uhden
Motion & Second to adopt rules - and - authorizing the Director of Agriculture to sign the Certification page on behalf of the Commission.
Board Comment
Public Comment
Adjourn
Members Present:
Lynn Preator (handler) of Big Horn County
Beau Fulton (grower) of Park County
Jerrod Lind (grower) of Platte County
Pascual Aguilar, (grower) of Park County
Jeff Chapman (handler)
Hank Uhden (ex-officio member, Wyoming Dept. of Agriculture)
Member(s) Absent:
Wayne Hort (grower) of Goshen County
Others Present:
Abigail Boudewyns, Attorney General's Office
Transaction of Business:

Motion by Lynn Preator, Second by Jarrod Lind to adopt rules - and - authorizing the Director of Agriculture to sign the Certification page on behalf of the Commission. All in favor unanimous. Motion Passed.

Public Comment:

None

Board Comment:

Update on hail damage at SAREC and commission funded research.

Adjourn:

Meeting adjourned at 3:39 pm.

2016 research projects

Cultural methods for improving direct harvest efficiency in dry edible bean

Andrew Kniss and David Claypool – University of Wyoming

Summary:

Dry bean production in Wyoming is relatively expensive compared to other crops due to high labor, equipment, and fuel costs. A typical dry bean grower may use five to nine field operations over each acre of dry beans. Dry bean growers in Wyoming have expressed interest in direct harvest as one way to reduce the cost of dry bean production. One of the primary concerns raised with adopting direct harvest is the potential for harvest losses. Over the last several years, we have been working with growers and on the SAREC research farm to develop cultural practices to reduce the potential for harvest loss. We have evaluated the impact of previous crop stubble and winter planted cover crops, and both have increased harvest efficiency compared to direct harvest on tilled soil. The logical next step in this process is to evaluate the impact of different dry bean germplasm (market classes, as well as varieties within a market class) in how they respond to previous crop residue or cover crops. This knowledge will be critical to developing recommendations on best practices for direct dry bean harvest systems for Wyoming.

Project objective:

Evaluate different dry bean varieties and market classes for how they respond to previous crop residue and winter-planted cover crops in a direct-harvest system.

Total funds requested for this project- $3,500

Late season weed control in dry beans.

Gustavo Sbatella – University of Wyoming

Location: Powell, WY.

Project synopsis:

Tillage practices combined with pre-plant incorporated or pre-emergence herbicides are the foundation for the majority of the weed control program in dry beans. Although these practices are efficient in providing early weed control, species that emerge late in the growing season such as Venice mallow and nightshades (berries) can be difficult to control. Late emerging weeds can interfere with harvest and affect the quality of the harvested bean crop; therefore there is a need to explore alternatives for late season weed control in dry beans. This project will explore tank mixing lay-by treatments with post emergence applications to improve weed control late in the season.

Total funds requested for this project- $3,500

Screening Dry Bean Genotypes for Drought Tolerance in Wyoming

Vivek Sharma and Jim Heitholt – University of Wyoming

Objective:

Under Wyoming conditions, identify dry bean genotypes tolerant to drought and physiological traits associated with that tolerance.

Methods

Typically, commercial cultivars and experimental genotypes are screened for drought tolerance by:

(1) Dividing the field into six sections, half designated for well-watered, half for drought.
(2) Growing each entry with full irrigation until the bloom stage.
(3) At bloom, continue full irrigation for the well-watered but apply only half that amount to drought areas. This can be done skipping every other irrigation for the drought sections.
(4) Collect growth data (e.g., height), physiological data (e.g., leaf stomatal conductance, leaf chlorophyll, and canopy temperature), and soil moisture data during pod fill.
(5) Collect yield, yield component, and maturity data at the end of the season and calculate drought resistance for each entry using standard formulas (explained elsewhere).

We expect to screen at least 30 genotypes each year during 2016, 2017, and 2018 at Lingle and Powell. Experimental lines such as NE 15-28-9 and NE 15-28-51 will be included as drought-tolerant checks and Long's Peak and NE 15-28-12 will be included as susceptible checks.

Total funds requested for this project- $3,500

Dry Bean Commission Research Proposal

John Tanaka – University of Wyoming

Understanding what dry bean producers want from the Dry Bean Commission in the near term may be crucial to continued funding through the recently approved check-off. This research proposal would be to conduct a scientifically valid survey of dry bean producers in Wyoming. The objective would be to determine which issues they would like the commission to work on and what sorts of research, dissemination of research results, and other activities they would like the commission to fund. This project would require funding of approximately $2,500 for one year with those funds paying for survey development (travel), printing, and mailing. This assumes that the Dry Bean Commission can provide a list of growers.

Total funds requested for this project- $2,500

Dry-bean soil-borne disease management with in-furrow fungicides

William Stump – University of Wyoming

Soil-borne dry bean diseases such as Rhizoctonia and Fusarium root rot typically are an ever present issue in dry bean production with disease severity dependent on environmental conditions, variety and cropping history. Growers have had limited options addressing these issues.

Objective:

The goal is to determine if a single in-furrow fungicide application at planting is sufficient to protect the dry bean crop until harvest from soil-borne disease impacts.

Objectives: Specific objectives will be to compare the efficacy of various in-furrow fungicides in terms of Rhizoctonia and Fusarium disease incidence, severity and final bean yield and quality. New biological fungicides will be evaluated along with conventional fungicides.

Impact:

Results will assist growers in selecting the most effective fungicides treatments for season long control.

Total funds requested for this project- $2,000

2017 Activities

The Bean Commission held two meetings to hear the results of work done with the previous year's grant money and to listen to proposals for eight new/ongoing projects from University of Wyoming researchers totaling $38,965 of which the Bean Commission voted to approve seven projects for a total cost of $34,215.

Ballots were sent to all eligible growers for the election of those Commission members whose terms were expiring on June 30, 2017. Beau Fulton, Jerrod Lind and Jeff Chapman were the only nominees for the positions and re-elected to serve a four year term on the Bean Commission.

The eight projects funded were:
$5,320 for Edible Dry Beans as Part of Improved Crop Rotation in Wyoming
$795 for "Cooperative Dry Bean Nursery SAREC- Lingle
$6,000 for Screening Dry Bean Genotypes for Drought Tolerance in Wyoming
$6,500 for Evaluation of Pop-up/Starter and Foliar Fertilizer Application on Dry bean Production
$5,000 for Late Season Weed Control in Dry Beans
$4,000 for Dry Bean Soil Borne Disease Management with In-Furrow Fungicides
$6,600 for Cultural methods for improving direct harvest efficiency in dry edible beans

2017 Meeting minutes

Wyoming Bean Commission
Powell R&E Center, 749 Road 9, Powell, WY 82435
February 2, 2017

Minutes:

Members Present:

Jeff Chapman (handler) of Goshen County
Pascual Aguilar (grower) of Big Horn County
Beau Fulton (grower) of Park County
Wayne Hort (grower) of Goshen County
Jerrod Lind (grower) of Platte County
Hank Uhden (ex-officio member from the Wyoming Dept. of Agriculture)

Members Absent:

Lynn Preator (handler) of Big Horn County

Others Present:

Dale Heggem, Senior Inspection Specialist, Wyoming Dept. of Agriculture
Ted Craig, Specialty Crop Grant Program, Wyoming Dept. of Agriculture
Jared Snell, producer
Camby Reynolds, PREC Farm Manager
Pam Jackson, Insurance adjustor/producer
Travis Jackson, producer
Shane Thompson, RMA Crop Insurance Agent
Cortney Allen, ADM handler representative
Michael Rasmussen, producer
Lyle Bjornestad, producer
Bret Hess, UW Agricultural Extension Service Associate Dean and Director
John Tanaka (by phone), UW researcher

Transaction of Business:

Meeting was called to order at 1:00 PM by Chairman Beau Fulton.

Members and guests introduced themselves.

Chairman Fulton requested Approval of Agenda and Approval of Meeting Minutes:

January, 2016
February 2016
April 2016
May 2016
August 2016

Jeff Chapman moved to approve, Jerrod Lind seconded. Motion passed.

Chairman Fulton requested information on legislative statute changes:

Hank Uhden passed out copies of the proposed changes. Those changes passed the House, and are now before the Senate. The changes clarify term limits for commission members.

Specialty Crop Grants:

Ted Craig provided a detailed overview of the specialty crop program, funding availability, application process, expectation of when funding would be made available. Craig also informed the commission some specialty crop funding may have two different funding sources to enhance fund availability. Over $100,000 in dry bean grant money is available. Vivek Sharma, Jay Norton, and Anwar Islam all have projects that have been funded. Craig also indicated a gluten free bean research project had been suggested.

Craig requested the commission appoint a member to review research project proposals. Beau Fulton suggested both a handler and a grower be appointed. Jeff Chapman (handler) and Beau Fulton (grower) volunteered to serve in this capacity.

University of Wyoming / Variety Trials:

Presentations by researchers was given at the WCIA meeting of the whole.

John Tanaka reported Jim Heitholt's multi-state bean survey would be sent to bean growers as soon as the list of growers was received from the handlers. Hank Uhden indicated once the list is compiled, he would provide the list from the office for comparison. Discussion followed about response integrity, and whether a follow up electronic or phone survey would be warranted. The consensus was the hard copy survey would suffice.

Andrew Kniss and David Claypool provided no oral report of the direct harvest trial due to weather preventing completion. The crop was hailed out. The trial will be repeated in 2017.

Administrative:

New and Existing Project Funding Discussion:

Hank Uhden suggested new and existing funding for future projects are discussed separately. Uhden suggested new proposals may be presented during the videoconference in spring 2017.

Future Meeting:

The Commission discussed the timeline required to accommodate all funding deadlines. Bret Hess indicated a February 23 deadline for matching funding from UW Northwest Applied Research Grant funds would be necessary. Ted Craig indicated a deadline of April 10 for his funding sources. Wayne Hort suggested a videoconference be scheduled when the researchers would be available to present for their funding requests. After discussion, a window of February 20-22 as potential dates was decided upon. Hess will contact the researchers and determine which date accommodates the pertinent individuals.

The commission also indicated their desire to pay for the cost of the video conference. Bret Hess told the commission he would determine the cost, and let them know.

Public Communications / Newsletter / Social Media - Hank Uhden:

Discussion of how to better communicate dates of the Bean Commission meetings was held. Producers discussed effective ways of communicating. The public notice is disseminated to newspapers, though not always published. The information is available on Facebook. A possibility of an email communication was suggested if addresses were made available.

Reports:

Dry Bean Consortium:

Bret Hess provided an update on the Dry Bean Consortium. Wyoming agreements are in place and ready to be signed, pending final review by the Attorney General. Hess hopes to have this complete by midsummer. Idaho and Colorado are in state of flux due to changing personnel, so their status is not currently known.

Hess reiterated the consortium does not commit resources, and does not obligate an institution's direction.

Uhden informed the group the commission had set aside $5000 per year to join the consortium.

Bean Bag Publication:

Jeff Chapman has been approached by the "**Bean Bag"** to participate in this publication. No indication was given as to costs, etc. He will look into this further and report back to the commission.

Commission Comment / Public Comment:

Audience expressed the need for better advertisement of the meeting dates and times. The commission discussed avenues of communication and indicated they would pursue more avenues of information for the general public.

Other Business:

Future Research Needs:

Beau Fulton has been approached about a dry bean fertilizer study involving pop-up and foliar fertilizer. Camby Reynolds suggested either Gustavo Sbatella or Vivek Sharma may be interested and able to do this study. Bret Hess suggested an invitation for research be shared with the research community. Lyle Bjornestad suggested the commission ensure the research projects not be a repeat of projects already explored. Prior research literature will be reviewed prior to award of new research funds.

Appointments to Crop Research Foundation:

Jerrod Lind and Lynn Preator now serving as representatives to foundation. Wayne Hort moved to appoint Jerrod Lind and Lynn Preator again to those positions. Jeff Chapman seconded the motion. Motion passed.

Election of Officers:

State statute requires annual election of officers. Terms expiring are Jerrod Lind, Beau Fulton, and Jeff Chapman. Names must be solicited from growers and submitted to Governor for appointment. Once this process is complete, election of officers for the coming year can take place. July 1 is the deadline for election of officers.

RMA Discussion:

Shane Thompson, RMA Crop Insurance salesman, fielded questions surrounding the 2014 crop season claims. The group discussed the scenarios that evolved during that season, and the ensuing lack of continuity around the state for disposition of the claims. Pam Jackson offered insight from a field adjustor standpoint. Ultimately, the group will draft a letter to be sent to the Steve Junghans of the Billings, Montana RMA office. The Billings office is responsible for Wyoming RMA.

Old Business:

Wyoming Bean Commission Rules Comments:

There were none submitted:

Chairman Fulton adjourned the meeting at 2:56 PM.

WYOMING BEAN COMMISSION
1:00 P.M.
February 21, 2017
Teleconference

Laramie - UW Campus, 137 Ag C
Powell – Northwest College, 231 West 6th Street, Orendorff Building (ORB), Room 122
Torrington – Eastern Wyoming College, 3200 West C Street, Tebbet Building, Room 252

Minutes:

Members Present:

Jeff Chapman (handler) of Goshen County
Pascual Aguilar (grower) of Big Horn County
Beau Fulton (grower) of Park County
Wayne Hort (grower) of Goshen County
Hank Uhden (ex-officio member from the Wyoming Dept. of Agriculture)
Lynn Preator (handler) of Big Horn County

Members Absent:

Jerrod Lind (grower) of Platte County

Others Present:

Bret Hess, UW Agricultural Extension Service Associate Dean and Director
John Tanaka (by phone), UW researcher
Jim Heitholt, UW Plant Sciencese
Mike Moore, Wyoming Seed Certification Service
Vivek Sharma, UW Agronomy/Irrigation Specialist
Gustavo Sbatella, UW Irrigated Crops and Weed Management
Andrew Kniss, UW Weed Ecology and Management in Cropping Systems
Bill Stump, UW Plant Pathology
Kelsey Hart, Wyoming Dept. of Agriculture

Transaction of Business:

Meeting was called to order at 1:04 PM by Chairman Beau Fulton.

Members and guests introduced themselves.

Chairman Fulton requested Approval of Agenda and Approval of Meeting Minutes: February 2, 2017

Jeff Chapman motion for approval, Lynn Preator seconded. Motion passed.

Dr. John Tanaka gave update on Dry Bean Research Surveys:

No changes have been made to survey and it is undergoing final review and is expected to go out next week. There are 259 growers identified in the research. The survey will go out to 200 randomly, with hopes of seeing a return of at least 50%.

The following gave 15 minute presentations:

Dr. Jim Heitholt – "Edible Dry Beans as Part of Improved Crop Rotation in Wyoming"

To summarize his presentation- Continuing research on improving yields and profits, both short term and long term. Short term- reduce tillage and maintaining better soil moisture. Long Term- providing growers with new management alternatives and upright cultivars. Total budget request for this study - $5,320.

Mike Moore – "Cooperative Dry Bean Nursery (SAREC Lingle Edition)"

In summary – Two common nursery locations, Powell & Lingle which provide resources to growers with variety of plots, often new crops to growers. (including some gluten free options)

Total budget requested is $795.

Dr. Vivek Sharma- "Screening Dry Bean Genotypes for Drought Tolerance in Wyoming"

In summary – continued studies in both Powell & Lingle. Powell having 36 dry bean varieties planted with two irrigation treatments and three row plots. Lingle having 23 dry bean varieties planted two irrigation treatments and four row plots. Study was measured with soil moisture and different depths. Study was compromised with hail storm in July of 2016. Total budget requested for this project is $6,000.

A new fertilization level and methods of delivery study presented and requested $6,600.

Dr. Gustavo Sbatella- "Late Season Weed Control in Dry Beans"

Continuation of study- challenge: nightshade (berries) and Venice Mallow and the problem of them interfering with crop harvest and quality as well as seed production failures.

A total requested budget of $5,000.

New project for pulse crops for the Big Horn Basin- potential pulse crops: chickpeas, dry peas and lentils. Two year study with the request of $4,750 per year.

Dr. Bill Stump- "Dry Bean Soil Borne Disease Management with In-Furrow Fungicides"

Objective of study – to determine if a single in-furrow fungicide application at planting is sufficient to protect the dry bean crop until harvest from soil borne diseases. Last year's trial was compromised by hail storm & would like to try study again.

Total budget request for this project- $4,000

Chairman Fulton thanked all the presenters and they were dismissed.

Chairman and members continued discussion.

Hank Uhden lead discussion on the funding requests and explained the process of the commission funding. The total requested amount presented today was $38,965 for the Dry Bean Commission.

Jeff Chapman made motion to not fund pulse crops (chickpeas, dry peas, and lentils) as they fall into separate class of dry beans. Motion was second by Lynn Preator. Motion carried. With eliminating the requested funds for the pulse crops, the new total requested amount is $34,215. Jeff Chapman moved to fund all the research proposals, Wayne Hort seconded, motion carried.

Other Business:

Hank discussed Insurance- Peruse drafting a letter of behalf of Bean Commission? Read email rec'd from Shane Thompson. Will have to send to two separate places as they cover two areas. Hank will move forward with composing letter.

Discussion carried about hail insurance. Chairman Fulton will get some information on hail insurance for the next meeting.

Old Business:

Request of Fund Proposals- Bret Hess recommended waiting for a next meeting until after the results get returned, which will depend on how soon the growers get them returned. Hopeful for the winter crop meeting with results of survey to better prepare for a call for proposal.

Chairman Fulton adjourned the meeting at 2:56 PM.

2017 Research Projects

Edible Dry Beans as Part of Improved Crop Rotation in Wyoming

Jay Norton and Jim Heitholt, University of Wyoming

Project description:

This proposal requests funds to support research and extension activities that will lead to improved production practices for edible dry beans with respect to soil health, water conservation, and reduced inputs. Funding would supplement a two-year Wyoming Specialty Crops Grant and would greatly enhance the project by allowing more complete analyses, more field visits, and more outreach activities.

Crop rotations in Wyoming's irrigated production areas are changing rapidly as marked increases in sugar beet yields reduce the acreage needed to supply sugar refineries. Wyoming sugar beet acreage has declined by nearly half in recent years, from 60,600 acres in the late 1990s, to 30,800 acres in 2010 to 2014. Yields increased by nearly 44% for the same periods. This reduction in sugar beet acres is allowing producers to adopt longer rotations, more sustainable rotations that often include edible dry beans. Edible dry beans have seen a 20% increase in acreage from the 1990's to the present.

The shift in crop rotations coincides with steady transition from furrow irrigation to overhead sprinklers. Sprinkler irrigation not only conserves water, but the decreased need for field leveling and furrowing creates opportunities for conservation tillage systems that reduce erosion and improve soil health and productivity. Reduced or zero tillage practices combined with direct harvest create much less soil disturbance than the approaches typically used in Wyoming, which include fall and spring tillage, combined with undercutting and windrowing for harvest, which removes much of the bean root system from the soil.

The objectives of this project are to evaluate effects of a conservation tillage system in a sugar beet-dry bean-barley rotation on soil and plant health and productivity (particularly on nitrogen fixation by beans), and to develop extension materials and programs that focus on opportunities for including edible dry beans in alternative, conservation-oriented crop rotations. Research activities will occur within a four-year-old, replicated dry bean-barley-sugar beet rotation at the UW Powell Research & Extension Center. The rotation is designed to compare conservation and conventional tillage systems under two levels of irrigation with an over-head sprinkler system. For this project we will include at least two edible dry bean varieties with different plant stature for assessment of direct-harvest feasibility.

Data collection will include bean growth and yield, biomass yield, assessment of weed pressure, harvest losses (beans on the ground), bean root nodulation, and soil health and fertility parameters, including: biological nitrogen fixation, total and labile soil organic matter components, and nitrogen and phosphorus use efficiency. The experiment will be carried out over the 2017 and 2018 growing seasons.

Extension materials and programs will include the following: highlighting the research at field days and "mini field days" at the Powell Research and Extension Center, producing short videos on the mini field days, writing articles for Wyoming Livestock Roundup and local papers, working industry (ADM, Yellowstone bean, others) to present at grower

meetings, hosting seminars during winter months at the R&E centers, and publishing a University of Wyoming Extension Bulletin. The University of Wyoming project team includes Jay Norton, Dept. of Ecosystem Science & Management, Jeremiah Vardiman, UW Extension Educator stationed in Powell, and James Heitholt, Carrie Eberle, and Urszula Norton, Dept. of Plant Sciences.

Total budget requested: $5,320

Cooperative Dry Bean Nursery – SAREC, Lingle

Mike Moore, University of Wyoming Seed Certification Service

Project Description:

The University of Wyoming Seed Certification Service coordinates the Cooperative Dry Bean Nursery, which is dry bean variety performance evaluation, at the Powell Research and Extension Center in a continuous and on-going program. In cooperation with the Cooperative Dry Bean Nursery coordinator, a wide range of germplasm is evaluated each year, including promising new lines and newly released varieties, assisting producers in selecting varieties best suited for Wyoming soils and climate. A common nursery set goes to cooperators in the dry bean production areas of the U.S. and Canada. The trial planted at this location is often supplemented by varieties that local contractors are considering for production. Public and private (proprietary) varieties are tested. The results of the trial are available to contractors and dry bean growers via the UW Ag Experiment Station website and Field Day Bulletin, the Wyoming Seed Certification Service website, and are provided as handouts at producer meetings when possible. The Annual Report of the CDBN, which includes data from all cooperators, is available on the Wyoming Seed Certification Service website and upon request. The trial has been conducted for more than 20 years by the Wyoming Seed Certification Service as unfunded research, using program fees as needed.

The report from the 2016 Powell CDBN and the 2016 Annual Report are included in this request as examples of past work.

Total budget requested: $795.

Screening Dry Bean Genotypes for Drought Tolerance in Wyoming

Vivek Sharma and Jim Heitholt, University of Wyoming

Objective:

Under Wyoming conditions, identify dry bean genotypes tolerant to drought and physiological traits associated with that tolerance.

Methods

Typically, commercial cultivars and experimental genotypes are screened for drought tolerance by:

1. Dividing the field into six sections, half designated for well-watered, half for drought.
2. Growing each entry with full irrigation until the bloom stage.
3. At bloom, continue full irrigation for the well-watered but apply only half that amount to drought areas. This can be done skipping every other irrigation for the drought sections.

4. Collect growth data (e.g., height), physiological data (e.g., leaf stomatal conductance, leaf chlorophyll, and canopy temperature), and soil moisture data during pod fill.
5. Collect yield, yield component, and maturity data at the end of the season and calculate drought resistance for each entry using standard formulas (explained elsewhere).

We expect to screen at least 30 genotypes each year during 2016, 2017, and 2018 at Lingle and Powell. Experimental lines such as NE 15-28-9 and NE 15-28-51 will be included as drought-tolerant checks and Long's Peak and NE 15-28-12 will be included as susceptible checks.

Total budget requested: $6,000.

Evaluation of Pop-up/Starter and Foliar Fertilizer Application on Dry bean Production

Vivek Sharma, University of Wyoming

Project Summary:

Dry bean growers in Wyoming are continuously looking for different ways to improve yield and production efficiency. Dry beans are a warm-season crop that prefer fertile and well-drained soil with adequate amount of irrigation during the growing season. Most of the dry bean production in Wyoming is only possible with irrigation (surface or sprinkler), as rainfall does not supply the required amounts of water for growth. According to the 2012 Census of Agriculture, Wyoming produced 49,516 tons of dry edible beans (excluding dry lima beans) on 41,618 acres with a total production of $37 million (USDA-NASS, 2012).

In addition to optimum moisture, dry beans also require adequate amount of all essential plant nutrients for optimum growth. These nutrients include phosphorus, nitrogen, zinc, potassium, sulfur, and to a much less extent boron, copper, manganese and iron. The timing and application of nutrient application is important to dry bean production, not only to sustain high yield, but also for the quality concerns. For example, excessive N can delay maturity and encourage excessive leaf canopy growth, which may lead to increased disease incidence and severity in some years. Maturity delays and increased disease may result in reduced market price for growers due to reduced quality (Franzen, 2013). Dry beans are also sensitive to phosphorous fertilizers especially on soil with low or medium levels of extractable phosphorous. The placement of phosphorous fertilizer in the root zone is important because phosphorous is not mobile in soil. Band application as startup fertilizer application at planting is the most effective method for phosphorous application (Davis et al., 2002).

Placement of starter fertilizer in the seed furrow is also commonly called as "pop-up" fertilizer application. This placement can be in the furrow, below the seed, to the side of the seed or to the side and below the seed (2" below and 2" to the side or '2x2 placement' is common). The potential benefit of starter or pop-up fertilizer application at the time of planting is to increase the early season dry bean seedling growth with a small amount of fertilizer. This early growth response results in larger plants of more uniform size, which further effect the yield quantity and quality. It is important to remember, that response to starter fertilizer may occur independent of soil fertility levels. Cool temperatures in early spring may lead to a variety of short-term nutrient deficiencies due to factors such as reduced

mineralization rates, less diffusion of immobile nutrients, and slow plant uptake. Starter fertilizers may stimulate early growth in these conditions and result in an overall healthier plant that may be able to better compete with future stressors such as weed, insect, or disease pressure.

However, major concern with the pop-up fertilizer placement in excess with the seed is the potential for salt injury to germination dry bean seed. Salt injury occurs when the fertilizer concentration in soil solution surrounding the seedling is so high that water moves out of the seedling and into the soil. Salt injury then results in killed plants or reduced growth. Rhem and Lamb (2009) have reported that 12 lbs of N/acre applied with the seed reduced plant populations on a loamy sand soil, while no stand reductions were observed on silty clay loam and clay loam soils. Other study conducted by Gelderman and coworkers (2004) working in South Dakota also demonstrated that higher rates of N as either dry urea or urea ammonium nitrate solution (28% N) significantly reduced corn plant populations when applied with the seed. Since dry beans are very sensitive to salt tolerance, even a small amount of excess fertilizer near the seed can reduce the stand substantially. Therefore, it is very important to identify the optimum rates of startup fertilizer to avoid dry bean plant injury. Dry edible beans are also sensitive to soil levels to zinc. However, in many cases it is not practical to broadcast zinc material on the soil as it is too easily fixed into unavailable forms. In that case, foliar application is used before the blossoming stage, when plants are young. However, the effect of foliar application with or without start-up fertilizer application has not been studied yet.

Objectives:

Considering the potential benefits of startup fertilizer application, it is very important to identify the optimum rate of starter fertilizer along with and without pre-plant and foliar application to avoid crop injury and at the same time provide essential nutrients for plant growth. In addition, there is no prescribed rate for startup fertilizer application for dry beans exists. This research will evaluate the effect of startup and foliar fertilizer application on dry bean yield under Wyoming conditions with specific objectives:

1. To evaluate the effect of startup fertilizer on plant population.
2. To evaluate the effect of different rates of startup fertilizer application with and without pre-plant fertilizer application on dry bean yield, yield components and maturity.
3. To evaluate the effect of foliar application of fertilizer on dry bean production.
4. Dissemination of information on dry bean nutrient application which enables dry bean producers to make informed decision on nutrient application.

Methodology:

The primary location for this project will be University of Wyoming Powell Research and Extension Center (UW-PREC) (44° 46′ 34.2″ N and 108° 45′ 30.9″ W at an elevation of 1334 m above mean sea level), near Powell, Wyoming. The experiment will be conducted in surface irrigated field for 2017 growing season. Soil testing will be done to before planting to assess the soil nutrient levels. Based on the soil test recommendations, three different rates of pre-plant fertilizer will be selected. In addition, three different rates of startup fertilizer application with our without foliar application will be evaluating in this study. Plant population, plant biomass, plant height and leaf area index will be assessed for all treatments

throughout the growing season. At the end of the growing season, yield, yield components (i.e. pods per plant and number of bean per pod) and maturity data will be collected to understand the effect of variable nutrient application on yield and yield component.
Various fertilizer sources can be used to make starter fertilizers. The most common liquid materials are ammonium polyphosphate solution (10-34-0 or 11-37-0) and urea ammonium nitrate solution (30% N). Other formulations include (7-21-7), (9-18-9), or (9-18-9) are common. Formulation may change based on the availability and if other nutrients are required. In general, a fertilizer with a high phosphorous ratio in a highly soluble form and combined with ammonium nitrogen can be used. Mono-ammonium phosphate based material are good choices, and ammonium polyphosphate (10-34-0) is also an excellent liquid starter. In this study, startup fertilizer will be selected based on the initial soil tests. Pre-plant fertilizer blend of (100-20-0-5) and foliar application of Max-In ® Ultra ZMB will be used in this study.
All the data and information from this project will be transferred to Wyoming Bean Commission and Wyoming Department of Agriculture through annual and final reports and supplementary narratives to explain and support payment requests detailing our progress towards our project performance items. The project team will also involve with university extension to provide information and knowledge gained from this project to Wyoming dry bean producers and clientele through extension activities e.g. University of Wyoming annual field day and extension bulletins. In addition, experiences and knowledge from this research will be provided to Wyoming Crop Improvement Association (WCIA).
Expected outcomes:
The results and data generated from this project will enhance our knowledge about the startup and foliar fertilizers application on dry bean production.
Total budget requested: $6,500

Late Season Weed Control in Dry Beans
Gustavo Sbatella, University of Wyoming
Project synopsis:
Tillage practices combined with pre-plant incorporated or pre-emergence herbicides are the foundation for the majority of the weed control program in dry beans. Although these practices are efficient in providing early weed control, species that emerge late in the growing season such as Venice mallow and nightshades (berries) can be difficult to control. Late emerging weeds can interfere with harvest and affect the quality of the harvested bean crop; therefore there is a need to explore alternatives for late season weed control in dry beans. These projects will explore tank mixing lay-by treatments with post emergence applications to improve weed control late in the season.
Total budget requested: $5,000

Potential pulse crops for the Big Horn Basin

Gustavo Sbatella, University of Wyoming

Two year study for a new project for pulse crops in the Big Horn Basin- potential pulse crops: chickpeas, dry peas and lentils.

Total budget requested: $4,750 per year.

Funding for this project was denied by the Bean Commission

Dry Bean Soil Borne Disease Management with In-Furrow Fungicides

William Stump, University of Wyoming

Objective:

To determine if a single in-furrow fungicide application at planting is sufficient to protect the dry bean crop until harvest from soil borne diseases. Last year's trial was compromised by hail storm & would like to try study again.

Issue:

Soil-borne dry bean diseases such as Rhizoctonia and Fusarium root rot typically are an ever present issue in dry bean production with disease severity dependent on environmental conditions, variety and cropping history. Growers have had limited options addressing these issues.

Goal:

The goal is to determine if a single in-furrow fungicide application at planting is sufficient to protect the dry bean crop until harvest from soil-borne disease impacts.

Objectives:

Specific objectives will be to compare the efficacy of various in-furrow fungicides in terms of Rhizoctonia and Fusarium disease incidence, severity and final bean yield and quality. New biological fungicides will be evaluated along with conventional fungicides.

Impact:

Results will assist growers in selecting the most effective fungicides treatments for season long control.

Total budget requested: $4,000

Cultural methods for improving direct harvest efficiency in dry edible bean

Andrew Kniss and David Claypool, University of Wyoming

Summary:

Dry bean production in Wyoming is relatively expensive compared to other crops due to high labor, equipment, and fuel costs. A typical dry bean grower may use five to nine field operations over each acre of dry beans. Dry bean growers in Wyoming have expressed interest in direct harvest as one way to reduce the cost of dry bean production. One of the primary concerns raised with adopting direct harvest is the potential for harvest losses. Over the last several years, we have been working with growers and on the SAREC research farm to develop cultural practices to reduce the potential for harvest loss. We have evaluated the impact of previous crop stubble and winter planted cover crops, and both have increased harvest efficiency compared to direct harvest on tilled soil. The logical next step in this

process is to evaluate the impact of different dry bean germplasm (market classes, as well as varieties within a market class) in how they respond to previous crop residue or cover crops. This knowledge will be critical to developing recommendations on best practices for direct dry bean harvest systems for Wyoming.

Project objective:

Evaluate different dry bean varieties and market classes for how they respond to previous crop residue and winter-planted cover crops in a direct-harvest system.

Total budget requested: $6,600

2018 Activities

The Bean Commission held seven meetings to hear the results of work done with the previous year's grant money and to listen to proposals for nine new/ongoing projects from University of Wyoming researchers totaling $84,900. The Bean Commission voted to approve all projects at full cost.
The Bean Commission joined the US Dry Bean Council (USDBC) whose goal is to increase the purchase and consumption of U.S. produced dry beans worldwide.
Dale Heggem was appointed to the Bean Commission as the Ex-Officio member from the WDA.

The nine projects funded were:
$15,500 for tillage-by- irrigation by variety study (project later dropped by researcher and no funds were provided)
$15,000 for Startup funding for vacant position at PREC
$7,500 for Evapotranspiration and response to drought
$13,500 for Starter and Pop-Up Fertilizers
$15,000 for Effect of plant density and row arrangements on dry bean productions
$4,000 for 2018 Cooperative Dry Bean Nursery Funding (Powell and Lingle)
$5,000 for Testing dry bean lines bred for Wyoming (Powell and Lingle)
$9,400 for Dry Bean Soil Borne disease management (two year project, $4,700 per year)

2018 Meeting minutes

Wyoming Bean Commission
Powell, Wyoming
1:00 p.m.
February 1, 2018

Minutes:

Called to order at 1:02

Board Members in attendance:

Beau Fulton, Hank Uhden, Wayne Hort, Pascual Aguilar, Jeff Chapman, Jerrod (Butch) Lind, Lynn Preator.

Others Attending:

Cindy Fulton, Dale Heggem, Ted Craig, Kelsey Hart, Bret Hess, Dr. Jim Heitholt, Jolene Sweet, Dr. John Tanka via video call, Sam Fulton via video call, Vivek Sharma, Dr. William Stump- via conf. call, Pam Jackson, Michael Rasmussen, Travis Jackson, Jared Snell, Pat Brownfield, Cortney Allen, Kyle Webber, Ray Cauffman, Doug Allen.

Agenda of 2017 meetings were reviewed and approved.

Discussion on the budget:

Currently the Wyoming Bean Commission has $224,000 on hand. A discussion took place regarding the approval of a refund request for Scot Fegler. Wayne Hort moved to approve the refund request, Jeff Chapman second the motion. Motion carried.

Jeff Chapman moved to approve the minutes from November 15, 2017 meeting. Butch Lind seconded the motion. Motion carried

Hank Uhden from Wyoming Department of Agriculture (WDA) discussed legislative statutes and updates.

Research Projects:

Ted Craig, Specialty crop Grants- (handout- packet)

Three projects for sustainable edible beans

Evaluation of Chickpeas in Wyoming Environments

Dry Bean Water Management and Yield Response Under Surface and Sprinkler Irrigation

Sustainable Production Practices for Edible Dry Beans

Andrew Kniss- Cultural methods of improving direct harvest efficiency in dry edible beans

Estimated another $18,000-20,000 to continue the project.

Dr. John Tanaka- grower survey results, two rounds of surveys, only 32 returned.

Jeff Chapman addressed the concern with the incorrect surveys being sent out. John explained that the files got mixed up by the student who was putting the surveys together. As soon as they were notified about the error, the corrective survey was resent within two weeks.

Pam expressed it may be better to do focus groups verses the survey in future due to the number of surveys growers receive

Bret Hess- Late season weed control in Dry beans.

The decision to terminate the project was made after tragic death of Dr. Gustavo and not having the records to know where the project stood to move forward with it, as Dr. Gustavo did the project primarily by himself.

Bret expressed the process of what the University is doing to refill Dr. Gustavo's position. The request is to fill the position and keep it at the Powell Research and Extension Center

Jeff Chapman asked if this is a project Andrew Kniss could pick up/take. Beau Fulton added to Jeff's question and asked if there were anything that the Bean Commission Committee could do to assist the University in helping move this request along.

Dr. William Stump- Dry bean soil- borne disease management with in-furrow fungicides

Looking to continue project both in Powell and at SAREC

Dr. Jim Heitholt – edible dry beans as part of improved crop rotations in WY.

Had good results thus far and will continue to work on results.

Vivek Sharma- Evaluation of Pop-Up /Starter and Foliar fertilizer application on dry bean production.

One year of experiment results so far. Would like to add another year to this project and test different nitrogen levels in the fertilizer

Vivek Sharma & Dr. Jim Heitholt- Screening dry bean genotypes for drought tolerance in WY

Wanting to conduct one more year to add one or two more factors

Dr. Jim Heitholt- Dry Bean Nursery SAREC & Powell Centers

Two handouts were passed out

Hank discussed utilizing USDA's Ag Statistic surveys to get surveys out.

Bean Commission Board Members discussed projects and funding considerations.

Six standing projects to consider in the budget, less the cost of the survey.

Discussion on total dollar amount to allocate

Wayne Hort made a motion to set a $15,000 suggested ceiling per project and suggested with additional consideration with a match or other leverage of funds from other financial agreements. Jeff Chapman seconds the motion. Motion carries.

Dry Bean Consortium – Hank Uhden

Hank Uhden reviewed the Dry Bean Consortium. Current status is unknown for formal organization; Bret Hess expressed contracts are in hands of University of Idaho and there has been some slight movement on progress on the Dry Bean Consortium.

Other Business:

Jeff Chapman requested an executive discussion with Dale Heggem, WDA's Grain Warehouse Examiner.

Committee met for executive discussion.

Meeting called back in session as open meeting.

Jeff Chapman makes motion to hire WDA to investigate the possible of a non-compliant bean dealer regarding the bean compliance, motion was seconded by Wayne Hort, motion carried.

Dale Heggem discussed a few other concerns with the numbers with insurance bean grading settlement process (dealer/grower agreement)

Wyoming Department of Agriculture/Wyoming Bean Commission Audit Agreement Review:

No expiration date to agreement

Appointments to Crop Research Foundation of Wyoming:

Currently, Butch Lind & Lynn Preator are appointed; open to renewal or reassign.

Wayne Hort moved to keep Butch Lind and Lynn Preator on the Committee, Jeff Chapman seconded, motion carried.

Wayne Hort moved to allow any Wyoming Bean Commission member to be alternative if one of the appointed cannot attend a meeting. Butch Lind seconded, motion carried.

Election of Officers:

Butch Lind moved to keep Committee officers as is, Lynn Preator seconded, motion carried.

Next proposed meeting:

Week of February 19, 2018. Follow up email to committee on setting exact date will take place.

Public comments:

Open discussion with Committee members, Dale Heggem, WDA and Pam Jackson (Grower and Insurance Adjuster) regarding crop insurance and CCC Agreement with Grain Elevators for bean grading. Conversation also lead to concern that the USDA & Industry standards are so far off and the need to have some balancing out needs to take place.

Pam Jackson suggested contacting the Billings, Montana's RMA, Dry Bean specialist for further information.

Jeff Chapman moved to adjourn, Butch Lind seconded, motion carried.

Meeting adjourned at 4:15pm

Wyoming Bean Commission
February 23, 2018
1:00 p.m.
Video Conference Call

Minutes:

Meeting was called to order at 1:02 pm

In attendance: Jeff Chapman, Wayne Hort, Jerrod (Butch) Lind, Vivek Sharma, Jolene Sweet, Samantha Fulton, Mike Moore, Jay Norton, Casey Krueger, Bret Hess, Camby Reynolds, Ted Craig, Nichole Forsburg, Jay Hall, Dale Heggem, Carrie Eberle, Keith Kennedy, Pascual Aguilar, Derek Grant, Andrew Kniss

Approval of minutes from February 1, 2018: Butch Lind moved to approve, Wayne Hort seconded, motion carried.

Presentations:

Jay Norton:

2017 tillage-by- irrigation by variety study.

Requesting $ 15,500

Casey Krueger:
RMA Insurance Payments, proposal for next year.
Requesting a letter of recommendation from Wyoming Bean Commission.
Jeff Chapman asked Keith Kennedy and Casey Krueger to get together to work towards a resolution for this proposal for next meeting.
There is a zero market value as there is no salvage market ; conversation on adjusters traveling 700+ miles to find "salvage market"
Hank Uhden will pass Casey Krueger's info onto Keith Kennedy.
Bret Hess / Jim Heitholt:
Startup funding for vacant position
Jim and Bret covered the proposal on hiring vacant faculty position, Weed Science/ Agronomy, Powell REC- Requesting $15,000 from WBC to add to start up pool to fill this position.
Vivek Sharma:
Evapotranspiration and response to drought
One more year to achieve results after set back in 2016 results at SAREC
Requesting $7,500
Vivek Sharma:
Starter and Pop-Up Fertilizers
One additional year, add application of starter fertilizer
Requesting $13,500, this include a student /field worker
Vivek Sharma:
Effect of plant density and row arrangements on dry bean productions
Requesting $15,000
Mike Moore:
2018 Cooperative Dry Bean Nursery Funding (Powell & Lingle)
$4,000 for both locations,
$1500 per location, hourly help
$500 lot rental & remaining supplies
Hank Uhden requested Mike Moore discuss the Rocky Mountain Bean Consortium Meeting plan, March 9, in Denver, CO – request for proposal with anticipation of growing projects in the ground this spring.
Request to keep some funds set aside for consortium.
Jim Heitholt:
Testing dry bean line bred for Wyoming
Requesting $2,000 –
$1,500 hourly help,
$500 plot fees for Lingle
Requesting $3000 –
$ 1,500 for hourly help,
$500 plot fees,
Addition $1,000 for added travel expense for Jim Heitholt to travel from Laramie to Powell.
$5,000 total request for both locations.

Kyle Webber, presenting for Bill Stump:
2017 Dry Bean Soil Borne disease management – hailed out, no data in 2016, 2017
2018 Dry Bean Soil Borne disease management:
$1200 – travel
$300 – supplies
$3,200 hourly help
Total $4,700- 1 year
Total $ 9,400 – 2 years
Andrew Kniss:
Does not have any additional requests for this year.
Project Request Totals:
One year all requests: $80,200
Two year request of: $84,900
Committee dismissed presenters to discuss project funding requests.
Wayne Hort moved to approve everything except Vivek #3 – (which was held for further discussion) and Bill Stump's two year proposal. Butch Lind seconded, motion carried.
Wayne Hort moved to restructure Vivek # 3 projects to restructure rows plots to 7.5, 15, & 22 to fund for total amount of $15,000. Butch Lind seconded, motion carried.
No new business to address:
Old business:
Hank Uhden brought up Ag Statistics for old business on surveys.
Butch Lind moved to adjourn, Wayne Hort seconded, motion carried.
Meeting adjourned 3:19pm

Wyoming Bean Commission
April 12, 2018
2:00 p.m.
Conference Call

Minutes:
Meeting was called to order at **2:00pm**.
Committee Members Present: Beau Fulton, Wayne Hort, Jerrod (Butch) Lind, Lynn Preator, Hank Uhden
Committee Members Absent: Pascual Aguilar, Jeff Chapman
Others in attendance: Richard Allen (Watts & Associates), Alex Affidahl (Watts & Associates), Steve Junghans (RMA)
Approval of minutes from February 23, 2018: Postponed approval to next meeting.
Agenda Topics:
Crop Insurance Discussion -
Revenue Protection with Watts & Associates

a. Revenue Protection (Industry Standard for crop protection)

b. Revenue based production expands upon yield based insurance. Expected yield x expected price = insurance amount. Available for almost every major crop nationwide traded through the Chicago Exchange.

c. Revenue protection based around commercial production versus yield coverage.

d. Dark Red Kidneys, Black, Navy and Pinto are the only ones available for the program.

e. Pricing data is needed to add varieties to the program.

f. What about Colorado? It is a possibility.

g. Where do we go from here?

Level of confidence in data collection. Need sample data on quantities and price contracted in February each year.

Engage buyers to commit to submit the information.

Look for 60% of production be contracted in order to have the program in place each year in order to calculate projected price.

a. Would it be available for 2019? Absolutely not. 2020 would be the earliest.

b. Submission window is July 7 and everything must be submitted by June 30.

c. ACTION ITEM: Send an email so that they have a contact to send the information.

Steve Junghans, RMA

a. What are the major types? (great northern or yellow)

b. Yield Protection

c. Contract seed bean type. Spokane area right now. Not offered in Wyoming but could be researched as possibility.

New business:

Proposal to Rocky Mountain/High Plains Research Consortium: Title: Dry bean soil-borne disease management with an integrated approach of tillage, variety, and in-furrow fungicides. William Stump, Assistant Professor; Kyle Webber, Graduate student.

Total for 1st year	$2600
Funding for 2nd year	$1600
Total Funding	$4200

More information is needed before action can be taken on this matter. Hank is working on clarifying with William Stump. Hank will report at the next meeting.

Old business:

Refunds:

Two refund requests submitted for payment. If the vendor is new to the payment system, it is a possible 6-8 month lag time before they are set up for payment because of changing requirements for vendors. Tax Identification Numbers must be verified with the IRS.

Status of Project Agreements:

Current Project agreement process is going fairly smooth. Hank is working on contracts and process.

Meeting adjourned at 2:41pm.

Wyoming Bean Commission
May 2, 2018
3:30 p.m.
Conference Call

Minutes

Meeting was called to order at 3:30 p.m.

Introductions:

Committee Members: Beau Fulton, Jeff Chapman, Wayne Hort, Jerrod (Butch) Lind, Pascual Aguilar, Lynn Preator, Hank Uhden

Others in attendance: Dr. Bill Stump, Mike Moore, Kelsey Hart

Voting on New Wyoming Bean Commission Rules:

Uniform Procedures, Fees, Costs, and Charges for Inspecting, Copying, and Producing & Public Records.

Hank recommended the commission approve the rules as written by the Wyoming Department of Agriculture. Jeff C. moved to approve the new rules as written by the Department. Wayne H. seconded, motion carried.

Voting on the proposal to Rocky Mountain/ High Plains Research Consortium:

Jeff moved to fund the continuation of the project for in-furrow fungicide trial. There was not a second to the motion. Motion failed.

New business:

Jeff requests that at the next meeting the commission discuss the U.S. Dry Bean Council Membership fees.

Next meeting will be a conference call and date will be set after a review of schedules.

Wayne H. motioned to adjourn.

Meeting adjourned at 4:21pm

Wyoming Bean Commission
July 23, 2018
3:00 p.m.
Conference Call

Minutes

Meeting was called to order at 3:05 pm by Chairman Fulton

Introductions

Committee Members: Beau Fulton, Jeff Chapman, Wayne Hort, Jerrod (Butch) Lind

Others in attendance: Kelsey Hart

Voting to adopt Chapter 2 Rules:

Uniform Procedures, Fees, Costs, and Charges for Inspecting, Copying, and Producing & Public Records.

Chairman Fulton proposed the commission approve to adopt the rules as written. Wayne H. moved to approve the adoption the Chapter 2 rules as written by the Department. Jeff C. seconded, motion carried.

RMA Discussion:
The committee discussed the status on the RMA requirements. Currently, they are looking at another year out to get the contract for pricing endorsement requirements met. Chairman Fulton was encouraged to draft a letter to the legislation and senators to help push the endorsement through. Chairman Fulton plans to discuss the draft letter with Hank Uhden upon his return.
The Revenue Protection status: Chairman Fulton emailed Alex Offerdahl with Watts & Associates for form letters for contract pricing. Chairman Fulton plans to follow up with Hank Uhden upon his return to see where we stand with this portion of the contract pricing.
National Dry Bean Council:
Next month, Chairman Fulton would like to schedule another call to discuss and make a decision on whether the committee feels they should take part in the U.S. Dry Bean Council and whether to take part for 6 months or 12 months. Chairman Fulton will send out an email next week to schedule a time for this meeting.
New business:
No new business to discuss.
Next meeting will be a conference call and date will be set after review of schedules.
Butch L. moved to adjourn. Wayne H. second, motion carried
Meeting adjourned at 3:20 pm

Wyoming Bean Commission
September 28, 2018
8:00 a.m.
Conference Call

Minutes
Meeting was called to order at 8:00 am by Chairman Fulton
Introductions:
Committee Members: Beau Fulton, Hank Uhden, Wayne Hort, Pascual Aguilar, Jeff Chapman, Jerrod (Butch) Lind, Lynn Preator, Hank Uhden
Others in attendance: Kelsey Hart, Dale Heggem, Vivek Sharma
Preventative Plant Info:
Beau Fulton provided an update with the preventative plant info and Jeff Chapman read the letter which was received from RMA.
Budget:
Hank Uhden reviewed the current budget for the Wyoming Bean Commission. It is currently at approximately $184,000. Hank asked that the commission decide on an amount for allocation of project funding. Motion was made for $90,000 to be budgeted for the 2019 research projects by Jeff Chapman, second by Butch Lind. Motion carried.
Chapter 2 Rules:
Hank Uhden discussed the status of Chapter 2. Chapter 2 has been completed.
Proposed timeline for research projects:

Hank Uhden discussed the proposed biennial timeline for research project proposals. A document was provided to the Commission indicating these proposed timeline of dates.

New business:

Project Proposal Application Discussion: Kelsey Hart, WDA presented the proposal to the Commission of suggested application process for all future research projects to help aid the funding and contract process of these proposals, as well as add some structure to the actual proposals to require similar information from all parties requesting funding for research projects through the Wyoming Bean Commission. A draft copy of the proposed application packet was provided to the Commission.

This proposal would indicate a deadline date for Researchers to submit their project proposals by January 15th of each year to allow the Commission to review the proposals prior to the presentations which would allow the Commission to ask more precise questions as well and have a better understanding of the projects prior to funding request approvals.

Legislative Updates:

Provided by Hank Uhden.

U.S. Dry Bean Council:

Lynn Preator gave an overview of what it would entail for the Wyoming Bean Commission to be a part of the National Dry Bean Council and the benefits it would bring. It would cost approximately $8,000 per year to join. Chairman Fulton entrained for a motion on joining the U.S. Dry Bean Council. Jeff Chapman moved to join, Butch Lind seconded, motion carried. Hank Uhden requested that Lynn send the exact contact information for payment to him so he can get the process started to add to state vendor management system. (This process could take on the upside of 6-9 months to complete.)

Elections:

New Chairman is up for elections at the next annual meeting in February in Powell, WY. There are also three members of the commission that terms come to end July 1. 2019. Ballots and voting process for those three members will begin in February 2019.

Dale Heggem, WDA, will be coming on to the Commission as Ex-Officio.

Next meetings:

A conference call and date will be set after review of schedules, sometime in late November /early December to vote and discuss on the application process for the Research Projects.

February 7, 2019 - in conjunction with WCIA in Powell, WY (new meeting location pending)

Butch L. moved to adjourn Jeff Chapman seconded, motion carried.

Meeting adjourned at 9:23 am

Wyoming Bean Commission
November 15, 2018
9:00 a.m.
Video Conferencing

Meeting Minutes

Call to order - Beau Fulton at 9:14am

Introductions:
Beau Fulton, Dale Heggem (WDA), Lynn Preator, Hank Uhden (WDA), Kelsey Hart (WDA), Jeff Chapman, Jerrod (Butch) Lind, Wayne Hort, Mike Moore (UW Seed Certification Service)

Approval of Agenda:
Two additions to agenda that did not get sent out by technical error, both items under "Other Business". Beau F. entertained a motion to approve agenda, Jeff C. makes motion, Wayne H. seconded the motion to approve agenda and additions. Motion carries.

Extension of two grants for Vivek Sharma:
Due to confusion with contraction process on both UW and WDA side, funding did not come available until October 2018. Vivek S. has requested funding extension for one year. Beau F. entertained a motion to approve the extension. Butch L. moved to approve extension, Lynn P. seconded. Motion carried

Application process:
Kelsey H., (WDA) reviewed the application process and forms.
Application forms must be submitted with Project Proposal and completed in its entirety
Applications and proposals must be submitted to Wyoming Department of Agriculture; Care of: Wyoming Bean Commission; by January 15 of each year to allow the Commission members to review content prior to project presentations.
Letter will be sent to Bret Hess at the University of Wyoming to disperse this information to all researchers. Application form will also be available on the Wyoming Bean Commission webpage.
Kelsey H. requested the Commission to vote on implementing this process for Project Proposal Funding Requests. Wayne H. moved to approve, Jeff C. seconded. Motion carried.

Other Business:

Election process:
Dale H. is working with companies to get list of growers. Commission reviewed and discussed the voting process according to statute requirements. The question was asked - "Do we want forms for nominations or post notices of nomination in public/media forum?"
Three current members are coming to end of their term July 2019.
New Chairman to be voted on in February and goes into effect July 1, 2019
Discussion to wait on Attorney General's interpretation on regional requirements (SE/NW) seats on commission - Commission would like to hold out as long as possible for Attorney General's interpretation prior to sending nominations.
Wayne H. moved to keep nomination process the same as last term, Jeff C. seconded, motion carried.

Mailing of "action requests" to growers:
Postcards under WBC Admin budget code. Jeff C. moved to send out a mailing, Butch L. seconded, motion carried.

Agenda items for February:
RMA - 45 minutes
Proposals - will determine time blocks one applications are received.
Scholarship program (money back) - suggested by Jeff C.

Funding Amount and number of selections
Dale will work with Keith Kennedy (Wyoming Wheat Commission) on the possibilities/parameters of scholarship funding as it is believed that the Wyoming Wheat Commission offers such a scholarship now.
Motion to adjourn - Butch L. moved to adjourn, Wayne H. seconded, motion carried.
Adjournment at 10:09 a.m.

2018 Research Projects

Startup funding for vacant position

Bret Hess and Jim Heitholt

Jim and Bret covered the proposal on hiring vacant faculty position, Weed Science/ Agronomy, Powell REC- Requesting $15,000 from WBC to add to start up pool to fill this position.

Request for funding made orally. No written project request submitted

Total budget requested: $15,000

Evapotranspiration and response to drought

Vivek Sharma

Background:

In the arid to semi-arid climate of Wyoming, most of the dry bean production is only possible with irrigation (surface or sprinkler), as rainfall does not supply the required amounts of water for growth. However, with changing climate conditions and increasing number of extreme events such as drought, there is huge uncertainty exist for the availability of future water resources. For example, in recent years, many Wyoming production areas did not receive adequate irrigation water for whole growing seasons. According to the 2012 Census of Agriculture, Wyoming produced 49,516 tons of dry edible beans (excluding dry lima beans) on 41,618 acres with a total production of $37 million (USDA-NASS, 2012). Considering the large dry bean acreage in the state, it has become essential to find the suitable dry bean genotypes with drought tolerance as well as other traits such as earliness. In addition, despite significantly large irrigated dry bean acreage in Wyoming, information on short and long-term and improved crop evapotranspiration (Etc.), plant physiological parameters and crop yield for different dry bean genotypes does not exist.

Objective:

1. Under Wyoming conditions, to identify dry bean genotypes tolerant to drought.
2. Quantify dry bean Evapotranspiration and physiological traits associated with that tolerance for selected dry bean genotypes.

Methodology:

Field experiments will be conducted for 2018 growing season at University of Wyoming James C. Hageman Sustainable Agriculture Research and Extension Center (SAREC), Lingle (42°8'15"N and 104°20'47"W) and Powell Research and Extension Center, Powell Wyoming (44°45'32"N and 108°45'30"W). For both locations at least 20 varieties (Lingle location) and 30 varieties (Powell Location) will be tested. A split-plot design will be used with three replicates which will be divided into well-watered or drought (the main plots). Canopy temperature, soil moisture, plant height and leaf area index will be measured throughout the growing season. Detailed description of all the method is already provided in the 2016 and 2017 final report.

Expected Outcomes:

The data and information from this project helps screening different drought tolerant dry bean cultivars for immediate use by producers or have identified promising genotypes that are used by dry bean breeders as parent material. In 2016 and 2017, our project identified eco- physiological relationships that may be useful for increasing yield, either genetically or through better irrigation management. No significant variation in yield was observed due to drought treatments. Poncho, Avalanche, Desert Song, Powerhorn, and Common Red Mexican were among the highest yielding genotypes. The findings quantifying the small differences in plant height and LAI among genotypes may prove useful in the future as we try to refine irrigation recommendations based on not only evapotranspiration estimates but also cultivar. Authors will continue the study in 2018 growing season. Further analysis will include the quantification of various drought indexes to identify the varieties that suitable under Wyoming climate.

The data, experiences and knowledge from this study will be shared with dry bean growers, their advisors, clientele and decision makers through outreach and extension programs (Field days and workshops). In addition, all the data and information from this project will be transferred to Wyoming Bean Commission through annual and final reports and supplementary narratives to explain and support payment requests detailing our progress towards our project performance items.

Total budget requested: $7,500

Starter and Pop-Up Fertilizers

Vivek Sharma

Dry bean growers in Wyoming are continuously looking for different ways to improve yield and production efficiency. Dry beans are a warm-season crop that prefers fertile and well-drained soil with adequate amount of irrigation during the growing season. Most of the dry bean production in Wyoming is only possible with irrigation (surface or sprinkler), as rainfall does not supply the required amounts of water for growth. According to the 2012 Census of Agriculture, Wyoming produced 49,516 tons of dry edible beans (excluding dry lima beans) on 41,618 acres with a total production of $37 million (USDA-NASS, 2012). In addition to optimum moisture, dry beans also require adequate amount of all essential plant nutrients for optimum growth. These nutrients include phosphorus, nitrogen, zinc, potassium, sulfur, and to a much less extent boron, copper, manganese and iron. The timing and application of nutrient application is important to dry bean production, not only to sustain high yield, but also for the quality concerns. For example, excessive N can delay maturity and encourage excessive leaf canopy growth, which may lead to increased disease incidence and severity in some years. Maturity delays and increased disease may result in reduced market price for growers due to reduced quality (Franzen, 2013). Dry beans are also sensitive to phosphorous fertilizers especially on soil with low or medium levels of extractable phosphorous. The placement of phosphorous fertilizer in the root zone is important because phosphorous is not mobile in soil. Band application as startup fertilizer application at planting is the most effective method for phosphorous application (Davis et al., 2002).

Placement of starter fertilizer in the seed furrow is also commonly called as “pop-up” fertilizer application. This placement can be in the furrow, below the seed, to the side of the seed or to the side and below the seed (2” below and 2” to the side or ‘2x2 placement’ is common). The potential benefit of starter or pop-up fertilizer application at the time of planting is to increase the early season dry bean seedling growth with a small amount of fertilizer. This early growth response results in larger plants of more uniform size, which further effect the yield quantity and quality. It is important to remember that response to starter fertilizer may occur, independent of soil fertility levels. Cool temperatures in early spring may lead to a variety of short-term nutrient deficiencies due to factors such as reduced mineralization rates, less diffusion of immobile nutrients, and slow plant uptake. Starter fertilizers may stimulate early growth in these conditions and result in an overall healthier plant that may be able to better compete with future stressors such as weed, insect, or disease pressure.

However, major concern with the pop-up fertilizer placement in excess with the seed is the potential for salt injury to germination dry bean seed. Salt injury occurs when the fertilizer concentration in soil solution surrounding the seedling is so high that water moves out of the seedling and into the soil. Salt injury then results in killed plants or reduced growth. Rhem and Lamb (2009) have reported that 12 lbs. of N/acre applied with the seed reduced plant populations on a loamy sand soil, while no stand reductions were observed on silty clay loam and clay loam soils. Other study conducted by Gelderman and coworkers (2004) working in South Dakota also demonstrated that higher rates of N as either dry urea or urea ammonium nitrate solution (28% N) significantly reduced corn plant populations when applied with the seed. Since the dry beans are very sensitive to salt tolerance, even a small amount of excess fertilizer near the seed can reduce the stand substantially. Therefore, it is very important to identify the optimum rates of startup fertilizer to avoid dry bean plant injury. Dry edible beans are also sensitive to soil levels to zinc. However, in many cases it is not practical to broadcast zinc material on the soil as it is too easily fixed into unavailable forms. In that case, foliar application is used before the blossoming stage, when plants are young. However, the effect of foliar application with or without start-up fertilizer application has not been studied yet.

Objectives:

Considering the potential benefits of startup fertilizer application, it is very important to identify the optimum rate of starter fertilizer along with and without pre-plant and foliar application to avoid crop injury and at the same time provide essential nutrients for plant growth. In addition, there is no prescribed rate for startup fertilizer application for dry bean exists. This research will evaluate the effect of startup and foliar fertilizer application on dry bean yield under Wyoming conditions with specific objectives:

1. To evaluate the effect of startup fertilizer on plant population.
2. To evaluate the effect of different rates of startup fertilizer application with and without pre-plant fertilizer application on dry bean yield, yield components and maturity.
3. To evaluate the effect of foliar application of fertilizer on dry bean production.
4. Dissemination of information on dry bean nutrient application which enables dry bean producers to make informed decision on nutrient application.

Methodology:

The primary location for this project will be University of Wyoming Powell Research and Extension Center (UW-PREC) (44° 46′ 34.2″ N and 108° 45′ 30.9″ W at an elevation of 1334 m above mean sea level), near Powell, Wyoming. The experiment will be conducted in surface irrigated field for 2017 growing season. Soil testing will be done to before planting to assess the soil nutrient levels. Based on the soil test recommendations, three different rates of pre-plant fertilizer will be selected. In addition, three different rates of startup fertilizer application with or without foliar application will be evaluated in this study. Plant population, plant biomass, plant height and leaf area index will be assessed for all treatments throughout the growing season. At the end of the growing season, yield, yield components (i.e. pods per plant and number of bean per pod) and maturity data will be collected to understand the effect of variable nutrient application on yield and yield component.

Various fertilizer sources can be used to make starter fertilizers. The most common liquid materials are ammonium polyphosphate solution (10-34-0 or 11-37-0) and urea ammonium nitrate solution (30% N). Other formulations include (7-21-7), (9-18-9), or (9-18-9) are common. Formulation may change based on the availability and if other nutrients are required. In general, a fertilizer with a high phosphorous ratio in a highly soluble form and combined with ammonium nitrogen can be used. Mono-ammonium phosphate based materials are good choices, and ammonium polyphosphate (10-34-0) is also an excellent liquid starter. In this study, startup fertilizer will be selected based on the initial soil tests. Pre-plant fertilizer blend of (100-20-0-5) and foliar application of Max-In ® Ultra ZMB will be used in this study.

All the data and information from this project will be transferred to Wyoming Bean Commission and Wyoming Department of Agriculture through annual and final reports and supplementary narratives to explain and support payment requests detailing our progress towards our project performance items. The project team will also involve with university extension to provide information and knowledge gained from this project to Wyoming dry bean producers and clientele through extension activities e.g. University of Wyoming annual field day and extension bulletins. In addition, experiences and knowledge from this research will be provided to Wyoming Crop Improvement Association (WCIA).

Expected outcomes:

The results and data generated from this project will enhance our knowledge about the startup and foliar fertilizers application on dry bean production.

Total budget requested: $13,500

Effect of plant density and row arrangements on dry bean productions

Vivek Sharma

Goal/Objectives of Project:

The objective of this study is:

1. To determine the optimum combination of dry bean planting density and row spacing.
2. Development of yield-plant density relationship under different irrigation rates in Wyoming.

3. Investigate the dry bean eco-physiological traits in response to different dry bean plant density and row spacing.
4. Determine the economic optimum population for different dry bean cultivars.

Project Synopsis:

Dry bean (Phaseolus vulgaris) is one of the most important row crops in Wyoming. Each year Wyoming produced approximately 44,000 tons of dry edible beans (excluding dry lima beans) on 42,000 acres with a total production of $27 million (USDA NASS, 2014). Dry beans are capable of fixing atmospheric nitrogen and are useful in breaking pest cycles when grown in rotation with other crops and provide a good economic return. In recent years, because of increasing interest on pinto beans among Wyoming producers; researchers in Wyoming and neighboring states have developed and tested different cultivars pinto bean that are adapted to region's loam to sandy loam soils (Sharma at al., 2017; Heitholt et al., 2017 and Stone et al., 2017). However, despite considerable effort in developing and testing of different dry bean cultivars, there has been relatively little effort to determine the optimum agronomic methods to optimize the dry bean production in Wyoming.

Traditional dry bean cultivars grown in Wyoming are predominately viney and produce dense, prostrate canopies on 22-inch and 30-inch row spacing. These prostrate canopies are generally associated with poor aeration, excessive moisture and prolonged periods of dampness. These environmental conditions are often associated with the development of white mold (Sclerotinia sclerotiorium), which is an economically important disease for dry beans. Disease problems associated with dry beans can be significantly reduced by adopting the optimum combination of plant density and row spacing with controlled irrigation rates. In addition, disease problems can also be reduced by adopting upright dry bean cultivars. Recommended seed densities for dry bean vary depending on production systems, dry bean growth types (vining to semi-vining to upright cultivars), yield- density relationships. In addition, the seeding density further depends on the cost of the seed and the selling price and not on the maximum biological yield (Wahab et al., 1986; Saindon et al., 1995). Therefore, it is important to determine the optimum combination of dry bean planting density and row spacing that are economically feasible.

Material and Methods:

Field experiments will be conducted for 2019 growing season at University of Wyoming Powell Research and Extension Center, Powell Wyoming (44°45'32"N and 108°45'30"W). The study will be conducted under a traditional sprinkler-irrigated field with GPS mounted lateral move overhead sprinkler irrigation system. For this study, a split-plot design will be used with three dry bean cultivars at five population densities under three irrigation rates (main plots) i.e. full irrigation treatment (FIT), 80% FIT and 65% FIT. For this experiment, three pinto dry bean cultivars i.e. Poncho, COSD7 (aka Sundance), and La Paz will be used. The target dry bean seeding rates will be 50,000; 75,000; 90,000; 105,000; and 120,000 plants per acre on 22-inch and 7.5-inch row spacing. Plots will be prepared with conventional tillage and will be fertilized according to soil test recommendations. Plant population, plant height, Leaf Area Index (LAI), Normalized Difference Vegetation Index (NDVI) and weed density will be assessed for all treatments throughout the growing season. At the end of the growing season, yield, lodging, and maturity data will be collected to understand the effect of

different plant densities and row spacing on dry bean yield. Economic analysis will be done by considering the cost of seed and selling price of the different cultivars.

Project Impact:

After personal communication with producers in Powell, Heart Mountain, and Lingle, Wyoming it became clear that producers are looking for information on dry bean row spacing and plant densities and its effect on dry bean yield quantity and quality, especially for pinto dry bean cultivars. This study seeks to use the most appropriate approach to determine the optimum combination of dry bean row spacing and planting density for different pinto dry bean cultivars based on both yield and economic returns. The research data generated from this research will provide much-needed information on optimal dry bean planting density and row spacing combination for yield increase for Wyoming producers. In 2018 our project identified the relationship between dry bean yield vs row spacing and planting density under different irrigation regimes, and this may be useful for increasing yield.

Total budget requested: $15,000

2018 Cooperative Dry Bean Nursery Funding (Powell & Lingle)

Mike Moore and Jim Heitholt

Background and Current State of Knowledge:

When considering dry bean varieties for production, Wyoming dry bean producers rely heavily on genetics and information from private companies (e.g., Preator Bean, ADM, Kelley Bean, Treasure Valley Seed) and public breeding programs (e.g., Nebraska, Colorado, Idaho, North Dakota). Replicated tests in the dry bean production areas of the state provide important information, and allow growers and contractors to make informed decisions.

Objective:

To compare agronomic characteristics and yield perfom1ance of recently-released and potential dry bean varieties in Wyoming.

Methods:

Seed of trial entries are provided by the CDBN nursery coordinator and are consistent across multiple locations throughout the U.S. and Canada. Heitholt will grow the test at Lingle and Moore will grow the test at Powell. Other varieties of local interest such as check varieties and potential new-to-the-area varieties may be included depending on input from local producers. At Lingle, the test will be grown in four-row plots,

30-inch rows, 15-feet long, with four replicates. At Powell, the test will be grown in three-row plots, 22-inch rows, and 15-feet long with four replicates. At Lingle, planting is expected in early June and for Powell, late May. Data to be collected include: days to flowering, days to maturity, grain yield, height (Lingle), lodging (Lingle) and seeds per pound. Varieties provided by the CDBN coordinator in 2018 are listed below. The Powell location will have at least four additional entries, including two numbered lines from ADM, and two named varieties from Treasure Valley.

En	Source	Entry	Source	Entry	Source
ACUG16NDP	Univ. Guelph	NEl-17-10	Urrea (UNL)	PK7-4	Miklas
La Paz	Provita	ACUG15-B4	Univ. Guelph	AAC Argosy	Univ. Guelph
PT16-9	Miklas (ARS)	Eclipse	Treasure	Othello	Treasure
PT11-13B	Miklas (ARS)	AAC Shock	Univ. Guelph	Inferno	Univ. Guelph
NE2-17-18	Urrea (UNL)	Yeti	Univ. GuelJ)h	CELRK	Provita
NE2-17-39	Urrea (UNL)	Dynasty	Univ. Guelnh	LRK6	Griffs
ND-Palomino	Osorno	SRl0-2-1	Miklas	OAC Rosito	Univ. Guelnh

Outreach Plan, Educational Products, and Expectations:

Results will be distributed to local contractors and producers via email, at grower meetings, and posted online at multiple sites by Moore as well as by the CDBN coordinator.

Total budget requested: $4,000

Testing dry bean lines bred for Wyoming

Jim Heitholt and Carrie Eberle

Background and Current State of Knowledge:

When selecting their dry bean varieties, Wyoming dry bean producers rely heavily on private companies (Preator, ADM, Kelley, Treasure Valley, etc.) and public breeding programs (Nebraska, Colorado, Idaho, North Dakota). Although these companies/universities provide a robust set of dry bean choices, we argue that Wyoming growers would benefit greatly by having data from additional experimental lines bred and tested specifically under local conditions. The goal of our breeding program is not to compete with seed companies but instead to develop lines that a private company might consider for licensing and distributing on their own.

Objective:

To compare the performance of dry bean lines that we have recently developed against a few of the industry pinto standards grown in Wyoming. Standards would be Poncho, Monterrey, Windbreaker, etc.

Methods:

In 2017 at Lingle, we harvested approximately 5,000 seed from 19 different F5 lines. We are describing these lines with the prefix LPID 1, LPID 2, etc. The LPID designation is simply our code for this series of lines and is not meant to be an acronym. One line, LPID-16, yielded 3200 lbs/acre (only had enough seed for one rep) which matched or exceeded all other pinto lines grown at Lingle in 2017 except Poncho. Many of these LPID lines are pinto but several are pink and some are still segregating, pinto and pink. In 2018, bulked seed from each of the LPID-x lines will be grown alongside the industry pinto standards. Experimental design will be a four replicate test using four row plots, 20-feet long, with 30-inch row spacing. Agronomic traits such as height, flowering, maturity, pod height, lodging, disease prevalence, yield, and seed size (i.e., number of seeds per pound) will be recorded. In 2017 at Powell, approximately 1,300 seed of each LPID-x line was collected. These lines will be grown in a four replicate test using three-row plots that are 20-feet long. These lines

will also be compared with the industry pinto standards. Agronomic traits will be recorded as described above.

Single-plant selections from each of the 19 LPID lines were made at Fort Collins and Lingle and these will be increased (plant-to-row) for preliminary observation and potential yield trials in 2019.

Outreach Plan, Educational Products, Expectations

We do not anticipate any formal outreach or education except to train our hired students in the process of plant selection and seed advancement. Although we cannot promise that our experimental lines will outperform the industry standards, the preliminary results are encouraging and the chances of success are reasonable enough to make this project a low-risk high reward investment.

Total budget requested: $5,000

Dry Bean Soil Borne disease management

Kyle Webber, presenting for Bill Stump-

Issue:

Soil-borne dry bean diseases such as Rhizoctonia and Fusarium root rot are typically a perennial issue in dry bean production. Disease severity is dependent on environmental conditions, soil compaction, variety and cropping history. Growers have had limited options addressing these issues.

Stress factors of soil compaction, dry or saturated soil condition can combine with dry bean root rot diseases to limit root growth and negatively affect yields. Fusarium root rot (*Fusarium solani* f.sp. *phaseoli*) of dry-beans occurs in most bean-growing areas throughout the world. Fusarium root rot can almost destroy a bean crop when plants are stressed by drought, soil compaction, soil saturation or oxygen stress. Fusarium root rot is often found associated with Rhizoctonia root rot, Pythium root rot and *Fusarium oxysporum* (causal agent of Fusarium Yellows) in a complex (Schwartz, 2005). In a study conducted in Nebraska, yield reductions of 52 and 42% for Great Northern beans and pinto beans respectively were observed due to Fusarium root rot (Steadman, 1975). In Colorado, pinto bean yield losses averaged 62% and 27% with some fields as high as 89% and 66% in 1971 and 1972 respectively (Keenan, 1974). Most commonly grown varieties are equally susceptible to root rots in this region, but some varieties are more tolerant to Fusarium infection than other varieties in the West (Schwartz, 2011). If producers are going to have reliable yields, we need to continue screening new and existing varieties for tolerance to fungal root rot diseases.

Mitigating soil compaction has shown some positive benefits in reducing the impacts of soil-borne diseases on dry bean (reduced disease and higher yields). Deep tillage treatments included modified planters with deep shanks and moldboard plow (Harveson et al, 2005 and de Jenson et al., 2004).

In-furrow fungicides have shown promise in managing some of these soil-borne diseases. Previous field trials have identified several commercially available fungicides that suppressed root disease (Stump, unpublished data). Biofungicides, also known as biological

fungicides, contain living organisms such as fungi, bacteria and actinomycetes which suppress and/or control the development of certain plant pathogens. Biofungicides are produced by several major agricultural chemical companies and show some promise against soil-borne pathogens. These pesticides have shown some success in the Midwest but our tests in the arid west have been mixed, and require further testing (Stump, unpublished data).

Goal: The goal is to determine if an integrated approach of a single in-furrow fungicide application at planting, varietal selection, combined with deep tillage to alleviate soil compaction is sufficient to protect the dry bean crop until harvest from soil-borne disease impacts.

Objectives: Specific objectives will be to compare the efficacy of two commercially available in-furrow fungicides in terms of Rhizoctonia and Fusarium disease suppression. To evaluate up to five locally adapted pinto bean varieties in the presence of disease. Finally, to investigate the utility of deep tillage on bean root development, and how that affects root disease.

Impact: Results will assist growers in selecting the best cultivars to use in the presence of soil-borne disease, if a prescription deep tillage operation is worthwhile, and to determine the most effective in-furrow fungicides treatments for season long control.

Outreach and technology transfer: We will report results at field days, such as the annual field day at SAREC and PREC for all two years of the study. Additionally in year two of the study, we will present the results of the study at the American Phytopathological Society's annual meetings attended by approximately 1,500 participants each year. If the results are clear-cut, an extension bulletin will be developed on the topic of soil-borne disease management in dry beans.

Training in experimental design, experimental procedures, statistics, and thesis writing will be provided to one graduate student. One referred publication will result from this research, concerning on the impact of production practices on soil-borne pathogens of dry beans in Wyoming's varied environments, likely in the journal Plant Disease or an agronomy journal.

Methods: Regional and temporal factors have a role in determining whether disease problem will emerge. The observations occurring at one location may not occur in different environments. The studies will be conducted during the 2018 and 2019 growing seasons at the Sustainable Agriculture Research and Extension Center (SAREC) located at 2753 WS Hwy 157 in Lingle, WY 82223 and at the Powell Research and Extension Center (PREC) located at 747 Rd 9, Powell, WY 82435. These two locations represent the two major dry bean producing regions in the state.

The experimental design will be a randomized complete block design with a split-split plot arrangement. Plots dimensions for each sub-subplot will be 10 x 20 feet for each fungicide x tillage x cultivar combination with four blocks. Tillage treatments will be established as whole plots, cultivars as subplots and fungicide treatment as sub-subplots. Tillage treatments evaluated will include conventional vs. deep tillage, specifics still to be determined between research sites.

The selection of varieties of pinto bean (*Phaseolus vulgaris*) used in the study are also to be determined. Selection will include the most common locally grown variety, any local varieties that are identified as having some soil-borne disease resistance and susceptibility

(Fusarium root rot) or varieties with high grower interest. Additional fungicides will be applied in-furrow at planting as per the manufacturers recommendations. Fungicide treatments will include a non-treated check and two fungicides representing two modes of action. Soil tests will be completed prior to planting and soil fertility levels will be adjusted according to recommendations. Weeds, insects and non-target diseases will be managed as needed following according to established guidelines.

Data collection will include; stand counts, plant vigor ratings, root disease severity, total seed yield, seed size, soil resistance, weather variables (soil and air temperature), and disease identity. To determine root disease levels, 10 plants per plot will be dug at the R7 growth stage (physiological pod maturity) and be rated for root rot according to the percentage of root tissues with discoloration, lesion or necrosis.

Total budget request: $9400 (Two year project. $4,700 per year)

2019 Activities

(to date as of 7/22/19)

The Bean Commission held seven meetings to hear the results of work done with the previous year's grant money and to listen to proposals for seven new/ongoing projects from University of Wyoming researchers totaling $74,522. The Bean Commission voted to approve all projects at full cost.
The Bean Commission joined the Rocky Mountain Dry Bean Association (RMBDA) whose goal is to increase the purchase and consumption of dry beans produced in the Rocky Mountain Region.
Beau Fulton and Jeff Chapman of the Bean Commission attended a two day meeting in Washington DC to meet with trade representatives that work with the USDBC and to talk with congressional members about the usefulness of trade programs such as those run by the USDBC and to discuss issues dealing with dry edible beans.
Dale Heggem was asked to represent the Bean Commission at the RMBDA meeting in Denver, CO to network with other state Bean Commissions to see how the groups can interact and work more closely in the future.

Ballots were sent to all eligible growers for the election of those Commission members whose terms were expiring on June 30, 2019. Wayne Hort was re-elected to serve a four year term on the Bean Commission. Pascual Aguilar and Lynn Preator did not place themselves on the ballot for re-election. At the time of this report two names had been submitted to the Governor's office for appointment to fill the open grower and handler positions on the Bean Commission.

As of June 30, 2019 the Bean Commission had $249,234 in assessment monies for future use in funding further research, education, end use products and market development projects.

The nine projects funded were:
$2,050 for Yield Maturity of cooperative dry bean nursery at PREC (Powell)
$8,720 for Yield Maturity of cooperative dry bean nursery at SAREC (Lingle)
$15,000 for Edible Dry beans as part of improved crop rotation in Wyoming
$13,052 for Effect of plant density and row arrangement of dry productivity in Wyoming (year two)
$16,000 for Cultural methods for improving direct harvest efficiency in dry edible beans
$4,700 for Dry bean soil-borne disease management with an integrated approach with tillage variety, and in furrow fungicides (year two)
$15,000 for Startup funding for vacant position at PREC

2019 Minutes

Wyoming Bean Commission
February 7, 2019
1:00 p.m.
Powell, Wyoming

Minutes:

Call to order: 1:07pm

Introductions:

In Attendance: Beau Fulton, Jeff Chapman, Wayne Hort, Pascual Aguilar, Dale Heggem, Jerrod (Butch) Lind (via phone), Kelsey Hart

Absent: Lynn Preator

Public Attendance: Steve Junghans- RMA; Cindy Fulton- WDA; Camby Renolds- UW; Andrew Kniss- UW; Austen Samet-Brown- TVS Handler; Jay Norton- UW; Vivek Sharma- UW PREC; Kyle Webber- UW; Kim Decker- WDA; Payden Gebauer- ADM; Pat Brownfield – ADM; Cortney Allen- ADM; Ray Cauffman – ADM; Bret Hess- UW; Jolene Sweet – UW Seed Certification; Jim Heitholt – UW-PREC; Dr. Bill Stump (Zoom)- UW

Corrections/Additions to Agenda

Add two refund requests for approval under other business

Approval of Minutes

Nov. 15, 2018 – Jeff Chapman moved to approve minutes, Wayne Hort seconded, motion carried.

Old Business:

Budget Overview:

Dale Heggem, As of December 2018, just over $200,000 in account, expected to reach $250,000 with upcoming assessments due. Beau Fulton added that the Bean Commission allocated $90,000 in funding projects at last meeting.

The $21,000 for Vivek Sharma's projects 2018 will not be pulled from the project funding for this budget as it was allocated at under the previous year's budget.

Scholarship update – Dale Heggem stated that the way the law reads, the commission cannot offer a scholarship with the Bean Commission funds, it would have to be a grower group to host the scholarship.

New Business:

Updates:

- Vivek Sharma update on Different Dry Bean Genotypes status from 2018 results.
- Vivek Sharma update on Pop-up/Start-up Foliar Fertilizer Application status from 2018 results.
- Jay Norton- updated on Edible Dry beans as part of Improved crop rotations (year two).
- Dry bean soil-borne disease management – Kyle Webber/Bill Stump.
- Start-up funding on new/vacant position at University of Wyoming – Bret Hess; they are

getting close on negotiation with first picked candidate. The funds allocated last year have not been used at this time. Bret asks that a no cost extension ($15k) be granted to allow time to use funds for research. Dale Heggem added the contract for this agreement expires March 31, 2019. If the Commission would like to continue this contract, a motion will need to take place. Wayne Hort moved to approve the extension, Jeff Chapman seconded, motion carries.

- Effects on Plant Density & Row Arrangements – Vivek Sharma (year one results).
- Dr. Jim Heitholt- 2018 Cooperative Dry Bean Nursery – updates.

New Projects:

- Yield Maturity of cooperative dry bean nursery- Heitholt/Moore (PREC- Powell)

Request $2,050, CDBN four replicates, 22in rows, flood irrigation, LPID retest w. keepers & checks (2-4 reps) Grow out progeny for numerous crosses.

- Yield Maturity of cooperative dry bean nursery- Heitholt/Eberle (SAREC-Lingle)
- Request $8270, CDBN four replicates, 30 in rows, sprinkler irrigation, LPID retest w. keepers & checks (2-4 reps) Grow out progeny for numerous crosses. Funds to assist in hiring personnel to work on data/research.
- Edible Dry beans as part of improved crop rotation in Wyoming – Norton/Heitholt

Conventional bean productions practices don't support conservation of cropping objectives, conservation tillage know to improve soils, efficiencies and lower costs (more soil study/data) data, yield components, soil health, BNF. Requesting $15,000/year for two years to support PhD student.

- Year Two – Effect of plant density and row arrangement of dry bean productivity in Wyoming – Sharma. Requesting $13,052 (Powell location)
- Cultural methods for improving direct harvest efficiency in dry edible beans - Kniss

Field prep & variety to minimize harvest lost in direct cut. Requesting $16,000 a year for two years. – Long term goal is to evaluated different dry bean varieties and market classes for how they respond to crop residue and winter-planted cover crops in a direct harvest system. 30 inch rows. Funding primarily for support of student.

- Dry bean soil-borne disease management with an integrated approach with tillage variety, and in furrow fungicides – Stump/Webber

Conducted at SAREC & PREC, may change some of the fungicides based on other fungicide trials, will include an additional earlier disease rating. Requesting $4,700

Other Requests:

Bret Hess, 2017 projects that continued in 2018, (roughly $30,000) Funds are still sitting in accounts and have less than 90 days to spend. Requesting to use these funds as a no cost extension (for two years) of funds to support new hire to continue the Venice mallow project Gustavo began in 2017. Bret Hess will abide to contract obligation and return funds to WBC if this request is not approved. Payments were originally double paid by WDA to UW for this contract. This is separate to the $15,000 request of start up positions request. Dale Heggem asked that the commission not take action on this until he could discuss the issue with the WDA accounting staff.

Other Business:

RMA presentation from Steve Junghans:

Contract Pricing – need 10 years historical contract price data from at least three main seed companies in requested area. Looking at 2021 before it is in effect with only 75% chance to get it going. RMA will need approximately one year to review data and make decision.
Letter from the Bean Commission would be sufficient to state interest.
508-h Dry Bean Revenue Program to Wyoming would need sufficient data to propose
What is needed:

- How many growers and acres will be insured
- What types are most important / commonly grown
- Are there good historical price data sources available in the region
- Good grower group contact
- Dry bean commission write a letter to RMA requesting that the dry bean revenue program be added to Wyoming
- Contact Watt's and Associates
- Primary contract Alex Offerdahl; aofferdah@wattsandassociates.com; 406-252-7776

Discussion on reviewing RMA Dry bean final planting date review. Big Horn Basin date is June 5th, South East Wyoming date is June 15th. Suggested changes must be submitted in writing by May 1st

U.S. Dry Bean Council updates:

Dale Heggem, 1st payment has been made. WBC needs to appoint a board representative & alternative. Dale Heggem proposed the Bean Commission table this discussion until the next meeting to allow time to think more on it.
2018 Report from WDA:
Dale Heggem, WDA Grain Warehouse Auditor: 2018 Findings: Two companies were found not in compliance. The issues have been addressed with those companies.

Other mailings to growers:

Will be sent out with ballots in March
Discussion on changes to submission date for researchers – applications/dates/etc.
January 15th date was perfect for researchers and the new applications very helpful
Legislative/statute updates

Term limits (chairman):

Two terms long enough to learn/fulfill position? Does the term need to lengthened/shortened?
Beau Fulton suggested two year is a sufficient for a chairman position

Assessment Caps/Changes:

Discussion took place, further discussion will be held at later date.

Refund requests:

$1035.39 Werbelow Brothers – Will need Kelley Bean remittance prior to paying refund. Wayne Hort moved to approve, Jeff Chapman seconded, motion carried.
$835.21 Scot Fegler - Pascual Aguliar moved to approve refund, Wayne Hort seconded, motion carried.

Election Process:

Nomination results: One grower was nominated – Wayne Hort
No handlers nominated.

Nominations are closed.
Dale Heggem will need to get Attorney General's interpretation on floor nominations versus Governor appointed seats due to lack of nominations.
Chairman/co-chair elections got off schedule at some point in the past. Per Statute, those positions must be elected in the first meeting after July 1 and have been currently selected in February meeting. To get back on track, elections for Chair and Co-Chair are to be postponed until first meeting after July 1 to allow correction of election timeline. Next meeting date will be scheduled via email.
Public comment/ Board comment: There were no additional comments.
Adjournment: 4:19 p.m.

Wyoming Bean Commission
March 6, 2019
2:30 p.m.
Teleconference (Powell/Lingle)

Minutes
Call to order: 2:30pm
Introductions:
In Attendance: Beau Fulton, Jerrod (Butch) Lind, Wayne Hort, Pascual Aguilar, Lynn Preator, Jeff Chapman, Dale Heggem (WDA), Kelsey Hart (WDA)
Absent: none
Public Attendance: Jolene Sweet – UW Seed Certification Service, Samantha Fulton- UW PREC, Camby Renyolds- UW PREC, Steve Paisley - UW SAREC, Mike Moore – UW Seed Certification Service
Corrections/Additions to Agenda: No Changes.
Approval of Minutes- *February 7, 2019:* Jeff Chapman moved to approve the minutes, Butch Lind seconded, Motion carried
Budget Review: Dale Heggem- WBC funds are currently sitting at around $220,000. He mentioned we probably won't see remainder of expected amount until end of next quarter- estimated that the account total should reflect $250,000 - 300,000 by end of 2nd quarter.
Research Projects:
Dr. Stump's project for $4,700 was part of a two year continuation of a multi-year that was allocated last year. It will not count towards this year's funding allocations.
Dale Heggem asked the board how they'd like to go about funding multi-year projects. He suggested that they fund as single year projects. Jeff Chapman motions to approve funding for projects on an annual basis & multi-year plans will be accepted and given priority funding in the following years. Multi-year plans will need to submit a project request and provide an annual progress report for the Commission to assess progress. Lynn Preator seconded motion. Motion carries to approve funding for multi-year projects on an annual basis with required documentation noted above.
Wayne Hort moved to approve all projects in full; Butch Lind seconded, motion carried.

Bret Hess - Request for no cost extension of unused WBC funds (UW Weed scientist research funds) – Dale Heggem spoke with WDA Accountant regarding this. WDA cannot reallocate those funds per language of the contracts.
Jim Heitholt – Request for no cost extension of unused funds from 2017 contract – Dale Heggem spoke with WDA Accountant regarding this. Based on the contract language, WDA cannot put an extension for a portion of the allocated funds.
All unused funds will be returned to WDA to and applied to the WBC account for future use.

Bean Commission Board openings:

Dale Heggem spoke to Attorney General's office regarding empty seats on the commission. The way statute is written, there cannot be any write in's or floor nominations. The only course of action is that they will have to submit application with Governor's office to request to be put back on the commission as a Handler/Grower. These applications cannot be submitted until after July 1, 2019. Applications are open to any Handler/Grower; it does not have to be a current member of the commission.

New business:

Dale Heggem clarified that the Weed Scientist Position contract was valid until June 30, 2019, not March 31, 2019 as originally stated at the last meeting.

U.S. Dry Bean Council:

Board Reps: Suggested for this first year have chair & co-chair and rotate annually at the WCIA meeting. Washington DC Meeting- April 3-4, 2019 – Commission needs to approve funds to send WBC members. Wayne Hort moved to send two people, Pascual Aguilar seconded, motion carried.

Other mailings to growers:

Letters were sent out with ballots last week.

Legislative Update:

Joint Appropriations Committee – requesting annual updates

Cap limit:

Do we set this in Rule, or Statute? Any other changes to current statute? No motions to change anything, suggested waiting another year at least.

Bean Commission Website Discussion:

Wyoming Crop Improvement Association host cost is $310/year and $20/month for host ($220/year) plus $8.33/year for split domain costs through UW Seed Certification Service. WDA also has a page designated for WBC that is updated regularly by Kelsey Hart and is no additional cost to the Bean Commission. Butch Lind moved to end contract with current host and maintain with WDA's Wyoming Bean Commission page. Wayne Hort seconded, motion carries.

Rocky Mountain Bean Dealers Association (RMBDA):

Dale Heggem is attending annual meeting in Denver this upcoming weekend and will meet with Colorado & Nebraska bean commissions to get some ideas. Jeff Chapman moved to join RMBDA as an Associate Member for $150, Lynn Preator seconded, motion carried. Dale Heggem needs approval from commission to approve travel expenses for him to travel to Denver to attend the RMBDA meeting this upcoming meeting. Lynn Preator moved to approve the travel, Jeff Chapman seconded m otion carried.

Bean Consortium:

February 25th, 2019- Dale Heggem noted that the Bean Commision was not provided an invite or agenda for this meeting. Dale Heggem has requested that the Bean Commission be added to the mailing list. Mike Moore attended and updated the Bean Commission on the meeting outcomes. Mike Moore mentioned there is an open seat for the Bean Commission to have a presence at the meetings. It was noted that the Bean Commission had previously voted to set aside $5,000 for the Consortium on an as needed basis. Those funds are still available but the Bean Consortium has never asked for them.

Election Process:

WDA will set up conference call in July or as soon as the Governor appoints members for the vacant positions to elect a new chair and vice-chair

Board/Public Comment: None.

Adjourn: Jeff Chapman moved to adjourn, Lynn Preator seconded, motion carried. Meeting adjourned at 4:22pm.

2019 Research Projects

Project Title: Yield, Maturity, and Stature of Cooperative Dry Bean Nursery Entries and Experimental Progeny in SE WY

Jim Heitholt & Carrie Eberle

Goal/Objectives of Project:

To provide yield and agronomic data on varieties that dry bean growers may be using in the future.

Project Synopsis:

The project has two components. The first is to conduct the Cooperative Dry Bean Nursery test typically grown in seven locations across the north each year with at least 20 varieties. The second is to evaluate progeny from the project leader's breeding program.

Project Impact:

Dry bean producers in southeastern Wyoming have limited variety trial data by which to consider when comparing standard varieties {Othello, Poncho, La Paz, etc.) vs. newer releases. Our project will provide growers with results to help in their variety decision making in 2020 and beyond.

Total Funds Requested: $8,270

Project Title : Yield and Maturity of Cooperative Dry Bean Nursery Entries and Experimental Progeny in the Bighorn Basin

Jim Heitholt and Mike Moore

Goal/Objectives of Project:

To provide yield, flowering date, maturity date and other agronomic data on varieties that dry bean growers may be using in the future.

Project Synopsis:

The project has two components. The first is to conduct the Cooperative Dry Bean Nursery test typically grown in seven locations across the north each year with at least 20 varieties. The second is to evaluate progeny from the project leader's breeding program.

Project Impact:

Dry bean producers in the Bighorn Basin of Wyoming have limited variety trial data by which to consider growing standard varieties (Othello, Poncho, La Paz, etc.) or newer releases. The test also helps contractors working in the state, as they can better predict production and place contracts based on locally ascertained maturity data. Overall, our project will provide growers and contractors with results to help in their decision making in 2020 and beyond.

Total Funds Requested: $2,050

Project Title: Dry-bean soil-borne disease management with an integrated approach with tillage, variety, and in-furrow fungicides

William Stump

Goal/Objectives of Project:

The goal is to determine if an integrated approach of a single in-furrow fungicide application at planting, varietal selection combined with deep tillage to alleviate soil compaction is sufficient to protect the dry bean crop until harvest from soil-borne disease impacts.

Project Impact:

Results will assist growers in selecting the best cultivars to use in the presence of soil-borne disease, if a prescription deep tillage is worthwhile, and what is the most effective in-furrow fungicide treatments for season long control.

Total Funds Requested: $4,700 (funding was previously approved in 2018 for a 2 year project)

Project Title: Cultural methods for improving direct harvest efficiency in dry edible beans

Andrew Kniss

Goal/Objectives of Project:

The long-term goal of this project is to evaluate different dry bean varieties and market classes for how they respond to crop residue and winter-planted cover crops in a direct-harvest system.

The specific objectives for this proposal are to:

1. Evaluate early-season node elongation for dry bean varieties in response to presence or absence of a winter wheat cover crop.
2. Measure pod height at maturity and evaluate whether early-season node heights predict bean pod height at maturity.
3. Determine the yield trade-offs (if any) from early season node extension and cover crop termination timing.

Project Synopsis:

In this study, we will evaluate the combined effects of bean varieties and a winter wheat cover crop terminated at different times on the yield and pod heights of dry edible beans.

Project Impact:

Because dry bean growers cannot control prices, the only option to remain competitive is to reduce production costs and/or increase yield. The information generated from this project will aid Wyoming dry bean producers in converting to efficient harvest practices that will both reduce fuel and labor requirements while also optimizing harvestable yield in a direct-harvest production system. In addition, this work will allow farmers to optimize practices that improve soil health (winter cover crops) and increase the profitability and sustainability of the entire enterprise. Direct harvest in combination with winter cover crops in the dry bean production system will reduce the potential for wind erosion in the spring prior to bean planting, and in the fall following bean harvest.

Total Funds Requested: $16,000

Project Title: Edible dry beans as part of improved crop rotations in Wyoming

Jay Norton & Jim Heitholt

Goal/Objectives of Project:

The goal is to assess the performance of four varieties (Poncho, COSD-7, Monterrey, and Windbreaker) in a conservation tillage system that includes a sugar beet-bean-barley rotation under conventional and minimum tillage, and full and deficit irrigation.

Specific objectives include:

1. Evaluate effects of a conservation tillage system in a sugar beet-dry bean-barley rotation on soil and plant health and productivity;
2. Assess interactions among variety, tillage practices, and irrigation level on growth & yield and nitrogen fixation in edible dry beans
3. Develop extension materials and programs that focus on opportunities for including edible dry beans in alternative, conservation-oriented crop rotations.

Project Synopsis:

Funding requested here would continue the project previously funded by the Wyoming Bean Commission and a WDA Specialty Crop Grant. Funding would be used to partially pay a PhD student to focus on research and extension components of this project. The student will also work on a cover crop study in the barley phase of the same rotation experiment in which the dry bean plots are embedded, which is funded by the USDA Western Sustainable Agriculture Research & Education Initiative and the USDA Northern Plains Climate Hub. Travel and other expenses would be covered by those grants and by the WDA Specialty Crop Grant. Funding would cover two more years of the field experiment (2019 and 2020), as well as submitting results to scientific journals, developing extension bulletins and fact sheets, developing an on-line resource page, and holding extension workshops on the project results at the end of the study.

A great deal of data on true yield, harvest losses, growth parameters, N fixation, and soil health indicators have been collected but are not yet compiled for the 2nct year of the project. Those results will be presented at the upcoming WBC meeting in Powell. Results indicated varietal differences in response to tillage and irrigation level.

Project Impact:

Results of this project will indicate whether certain varieties of dry beans are better choices than others for inclusion in conservation cropping systems. Hiring an accomplished and highly capable PhD student to focus on this project will enhance its impact through thorough data analysis and reporting, creation of excellent extension materials that incorporate results into farmer decision making, and extension presentations/workshops that translate results and train producers and educators. I have selected a graduate student who is an ideal fit for this project. Her credentials are available upon request.

Total Funds Requested: $15,000

Project Title: Effect of plant density and row arrangements on dry bean productivity in Wyoming

Vivek Sharma & Jim Heitholt

Goal/Objectives of Project:

The objective of this study is:

1. To determine the optimum combination of dry bean planting density and row spacing.
2. Development of yield-plant density relationship under different irrigation rates in Wyoming.
3. Investigate the dry bean eco-physiological traits in response to different dry bean plant density and row spacing.
4. Determine the economic optimum population for different dry bean cultivars.

Project Synopsis:

Dry bean *(Phaseolus vulgaris)* is one of the most important row crops in Wyoming. Each year Wyoming produced approximately 44,000 tons of dry edible beans (excluding dry lima beans) on 42,000 acres with a total production of $27 million (USDA NASS, 2014). Dry beans are capable of fixing atmospheric nitrogen and are useful in breaking pest cycles when grown in rotation with other crops and provide a good economic return. In recent years, because of increasing interest on pinto beans among Wyoming producers; researchers in Wyoming and neighboring states have developed and tested different cultivars pinto bean that are adapted to region's loam to sandy loam soils (Sharma at al., 2017; Heitholt et al., 2017 and Stone et al., 2017). However, despite considerable effort in developing and testing of different dry bean cultivars, there has been relatively little effort to determine the optimum agronomic methods to optimize the dry bean production in Wyoming.

Traditional dry bean cultivars grown in Wyoming are predominately viney and produce dense, prostrate canopies on 22-inch and 30-inch row spacing. These prostrate canopies are generally associated with poor aeration, excessive moisture and prolonged periods of dampness. These environmental conditions are often associated with the development of white mold *(Sclerotinia sclerotiorium*), which is an economically important disease for dry beans. Disease problems associated with dry beans can be significantly reduced by adopting the optimum combination of plant density and row spacing with controlled irrigation rates. In addition, disease problems can also be reduced by adopting upright dry bean cultivars. Recommended seed densities for dry bean vary depending on production systems, dry bean growth types (vining to semi-vining to upright cultivars), yield- density relationships. In addition, the seeding density further depends on the cost of the seed and the selling price and not on the maximum biological yield (Wahab et al., 1986; Saindon et al., 1995). Therefore, it is important to determine the optimum combination of dry bean planting density and row spacing that are economically feasible.

Material and Methods:

Field experiments will be conducted for 2019 growing season at University of Wyoming Powell Research and Extension Center, Powell Wyoming (44°45'32"N and

108°45'30"W). The study will be conducted under a traditional sprinkler-irrigated field with GPS mounted lateral move overhead sprinkler irrigation system. For this study, a split-plot design will be used with three dry bean cultivars at five population densities under three irrigation rates (main plots) i.e. full irrigation treatment (FIT), 80% FIT and 65% FIT. For this experiment, three pinto dry bean cultivars i.e. Poncho, COSD7 (aka Sundance), and La Paz will be used. The target dry bean seeding rates will be 50,000; 75,000; 90,000; 105,000; and 120,000 plants per acre on 22-inch and 7.5-inch row spacing. Plots will be prepared with conventional tillage and will be fertilized according to soil test recommendations. Plant population, plant height, Leaf Area Index (LAI), Normalized Difference Vegetation Index (NDVI) and weed density will be assessed for all treatments throughout the growing season. At the end of the growing season, yield, lodging, and maturity data will be collected to understand the effect of different plant densities and row spacing on dry bean yield. Economic analysis will be done by considering the cost of seed and selling price of the different cultivars.

Project Impact:

After personal communication with producers in Powell, Heart Mountain, and Lingle, Wyoming it became clear that producers are looking for information on dry bean row spacing and plant densities and its effect on dry bean yield quantity and quality, especially for pinto dry bean cultivars. This study seeks to use the most appropriate approach to determine the optimum combination of dry bean row spacing and planting density for different pinto dry bean cultivars based on both yield and economic returns. The research data generated from this research will provide much-needed information on optimal dry bean planting density and row spacing combination for yield increase for Wyoming producers. In 2018 our project identified the relationship between dry bean yield vs row spacing and planting density under different irrigation regimes, and this may be useful for increasing yield.

Total Funds Requested: $13,052