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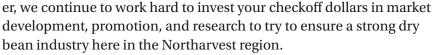
STARTING POINT

An Uncertain Harvest

The 2016 dry bean harvest is underway and is expected to produce some varied results. While most of the Northarvest growing region enjoyed a favorable growing season, there have definitely been some pockets that had excessive rain, while other areas perhaps could have

used more timely rain. The crop loss I've personally seen this year in Pembina, Walsh and Grand Forks counties has been devastating. USDA has just released its first crop production estimate for 2016, as you'll read in this issue, but it may be some time before we have a more accurate assessment of North Dakota's dry bean crop.

The uncertainty of this year's harvest creates a budgeting challenge for your Board of Directors. As always, the Board has taken a rather conservative approach to the budget situation; howev-



Bean prices in Brazil have reached record levels, due to weather problems in the world's largest bean producing nation. While Brazil will rely on its neighbor, Argentina, for its black beans, there is a possibility that this could create an opportunity to introduce the Brazilian consumer to U.S. pinto beans.

While dry bean growers have traditionally paid to store their crop at a dry bean processor, some growers store their beans on the farm. Read about some of their experiences and advice in this issue. You can also read about how the budget cut required by all North Dakota state agencies will impact the North Dakota State University Extension Service, as well as the North Dakota Agricultural Experiment Station. Speaking of NDSU, you'll also meet some of the graduate students who are doing a lot of work on dry beans, and will hopefully continue working at NDSU.

You'll also learn more about our newest Board member, Joshua Ihry from Hope, N.D., who was recently elected to the North Dakota Dry Bean Council. There is also an update on the Mexican crop situation.

I wish everyone a safe and successful harvest.

Sincerely,

Tom Kennelly, President Northarvest Bean Growers Association



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Dry Bean Production Declines in 2016

USDA forecasts 2016 dry bean production at 29.5 million hundredweight, down 2 percent, or 588,000 hundredweight, from last year. Planted acres are two percent more than USDA's June 30th estimate, but three percent less than last year. Harvested acres are also up two percent from June and down three percent from 2015. The average yield is up 21 pounds per acre from a year ago.

Compared to last year, USDA's estimate of pinto bean acreage is

up 11 percent; navy bean acreage is down 14.5 percent; black bean acreage is down 24 percent; pink bean acreage is fractionally lower; small red acreage is down 33 percent. Light red kidney bean acres are down 58 percent from 2015; dark red kidney bean acreage is down 26 percent; and Great Northern acres are up two percent.

North Dakota's dry bean crop forecast is five percent more than last year; Minnesota's crop is down eight percent. The average yield in North Dakota is 1,470 pounds per acre, up from 1,400 pounds last year. The average yield in Minnesota is 2,200 pounds, compared to 2,140 last year.

Michigan's dry bean crop forecast is 28 percent below last year. Idaho's crop is 30 percent larger than last year, Washington's production forecast is up 55 percent, and Montana growers are forecast to produce more than twice the dry beans they did in 2015.

Dry Edible Bean Area Planted and Harvested, Yield, and Production - States and United States: 2015 and Forecasted August 1, 2016

	Area Planted		Area Harvested		Yield Per Acre ¹		Production ¹	
State	2015	2016	2015	2016	2015	2016	2015	2016
		1,000	acres		pou	ınds	1,000	0 cwt
Arizona	9.1	(NA)	9.1	(NA)	2,070	(NA)	188	(NA)
California	45.0	48.5	44.5	48.0	2,310	2,230	1,029	1,070
Colorado	50.0	45.0	46.5	42.5	1,820	2,000	846	850
Idaho	120.0	140.0	119.0	139.0	1,800	2,000	2,141	2,780
Kansas	8.0	(NA)	7.8	(NA)	2,500	(NA)	195	(NA)
Michigan	275.0	220.0	272.0	216.0	2,030	1,840	5,533	3,974
Minnesota	190.0	170.0	182.0	163.0	2,140	2,200	3,896	3,586
Montana	49.0	101.0	47.3	98.5	1,340	1,400	634	1,379
Nebraska	140.0	145.0	131.0	134.0	2,380	2,350	3,117	3,149
New Mexico	12.9	(NA)	12.9	(NA)	2,050	(NA)	264	(NA)
New York	8.0	(NA)	7.8	(NA)	1,510	(NA)	118	(NA)
North Dakota	655.0	660.0	635.0	635.0	1,400	1,470	8,901	9,335
Oregon	9.0	(NA)	9.0	(NA)	2,300	(NA)	207	(NA)
South Dakota	12.5	(NA)	11.6	(NA)	1,770	(NA)	205	(NA)
Texas	31.0	25.0	28.0	23.0	1,400	1,300	392	299
Washington	110.0	130.0	109.0	129.0	1,450	1,900	1,582	2,451
Wisconsin	7.9	(NA)	7.9	(NA)	2,030	(NA)	160	(NA)
Wyoming	32.0	32.0	31.0	30.0	2,300	2,200	713	660
United States	1,764.4	1,716.5	1,711.4	1,658.0	1,760	1,781	30,121	29,533

¹Clean basis.

DEALER ESTIMATES

Dry bean dealer organizations from across the US estimate this year's dry bean area at 1.49 million acres, 13 percent less than USDA's estimate, and 15 percent below last year's USDA planted acreage estimate.

USDA and bean dealer association estimates agree on pinto bean acres, at approximately 644,000. USDA's navy bean acreage estimate is one percent above the bean dealers' estimate. USDA has three percent more black bean acres than the bean dealers.

USDA Estimates, by Class				
Class	2015	2016		
	1,000	acres		
Navy	235.4	201.4		
Great Northern	44.7	45.5		
Pinto	580.1	644.2		
Black	332.4	252.1		
Sm chickpeas	72.2	111.1		
Lg chickpeas	135.3	210.0		
Lt red kidneys	67.2	28.3		
Dk red kidneys	79.3	59.0		
Pink	19.5	19.4		
Small red	53.7	36.1		
Cranberry	8.2	3.3		

Minnesota acreage changes from 2015				
Navy beans	-14 percent			
Pinto beans	+107 percent			
Black beans	-3.5 percent			
DRK	-10 percent			
No. Dakota acreage changes from 2015				
No. Dakota acre	age changes from 2015			
No. Dakota acrea	-13 percent			
·				
Navy beans	-13 percent			

Dealers estimate US dry bean production at 25.4 million hundredweight, 14 percent less than USDA's current forecast. Dry bean dealers peg this year's pinto bean crop at almost 10.5 million cwt, up 10 percent from last year. The black bean crop is 22 percent below last year, and U.S. navy bean production is estimated to fall 26 percent this year. Bean dealers also expect a 54 percent reduction in light red kidney production, 33 percent less dark red kidneys, and 38 percent fewer small reds. Dealers estimate a 16 percent increase in Great Northern production this year.

The North Central Bean Dealers Association estimates total dry bean area in Minnesota, Wisconsin, North Dakota and South Dakota, at 805,500 acres. This is down two

percent from a year ago. Production in the North Central states is pegged at 11.79 million cwt, down 5 percent from 2015. North Central Bean Dealers are using average yield estimates of 1,400 pounds per acre for pinto beans, and 1,450 pounds for navy and black beans.

Canada Stats

Statistics Canada estimates this year's acreage of dry edible beans at 286,767 in Canada, up 10 percent from 2015. Dry bean acreage in Manitoba is up 30 percent, to nearly 117,000 acres. Ontario acreage is pegged at almost 125,000 acres, down four percent from a year ago.

U.S. DRY BEAN DEALER ESTIMATES

Variety	Acreage	Production	Carryover*	Total Supply
Pinto	644,336	10,485,740	95,618	10,581,358
Pink	19,724	304,538	3,850	308,388
Small red	32,543	691,011	21,015	712,026
Small white	2,399	49,776		49,776
Navy	199,204	3,394,485	29,956	3,424,441
Great No.	47,099	1,064,212	317,423	1,381,635
Black	245,204	4,380,954	30,201	4,411,155
Cranberry	4,847	86,651	1,700	88,351
LRK	27,425	562,732	229,834	792,566
DRK	53,780	1,060,440	45,300	1,105,740
Lg lima	13,646	321,184	33,500	354,684
Baby lima	6,754	168,006	83,000	251,006
Blackeye	28,700	511,575	109,914	621,489
Garbanzo	130,798	1,650,290	400	1,650,690
Other	38,896	698,287	83,645	781,932
TOTALS	1,495,355	25,429,881	1,085,356	26,515,237

^{*}Does NOT include carryover estimates from N.D., MN, S.D. and WI

Hope Farmer the Newest ND Dry Bean Council Member

What's the biggest challenge for farmers in the dry bean industry? Ask Josh Ihry and he'll tell you two things: price and controlling weeds. The newly elected North Dakota Dry Bean Council member tells the BeanGrower magazine this was especially true for many farmers in the Hope, North Dakota area. It was more cost effective for farmers to grow soybeans than it was to grow dry beans this year: especially factoring in the weed management costs.

"We're looking at typically \$100 more per acre



Josh Ihry, Hope, ND

to raise dry edible beans versus soybeans," says Ihry. "When you have soybeans spike up to \$11, like they did a few months ago, a lot of farmers will back out of growing dry beans to raise soybeans." Ihry attended his first Council meeting earlier this year. Members of the Dry Bean Council help promote and boost dry bean demand, which is one reason Ihry decided to pursue the leadership role. "I thought it would be good to spend time promoting a product I raise," says Ihry. "I want to help create new markets, like Cuba, and help drive demand for dry beans."

Ihry also thinks it would be great to push funding toward research to create healthier plants and address proper weed man-





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agement. Ihry says there is a lack of new products to manage weeds like kochia, common ragweed and nightshade in dry beans. "We've been using the same mode of action for resistance for the last 10 years," explains Ihry. "We're not seeing the burnout that we used to in the fields and there are farmers applying herbicide more than three times. At \$25 to \$30 a crack each time, it gets to be poor management."

Harvest is finally here and Ihry is preparing to harvest pinto and navy beans with his wife, Laura, and father-in-law, Clark Lemley. Ihry joined Lemley on the farm in 2004. In the next few years, Ihry will be taking over the farm. Lemley is in the process of transitioning the responsibilities of the operation to Ihry.

"We're in the middle of a transition plan now; three years along in a five year plan. It's a moving target," explains Lemley. "My plan is to go two more years and hand over management responsibilities and whatever goes along with that."

That wasn't necessarily the way Lemley planned it. Lemley has daughters and he wasn't sure how to exactly transition the farming operation. When Ihry and Laura returned to North Dakota from a move to Kansas, Ihry became an active part of

Lemley's farming operation. Lemley says his sonin-law is very dedicated to the farm.

"There's a generational difference in our management abilities and when there's a generational difference, there's a different thought process to make decisions on the farm," says Lemley. "Those are all good things to have moving forward."

At the end of the day, Ihry's goal is to manage the farm to the best of his ability and be there for the day-to-day decisions. "We pride ourselves on being able to do every aspect of the farm. I think that's the best way to be profitable, when you're hands-on."

Looking ahead at the future of the dry bean industry, Ihry thinks the dry bean industry could raise organic edibles in different markets. "The American consumers' appetites will drive that," he explains. "Non-GMO, gluten-free and organic seems to be very much on consumers' minds right now. Farming in the future, whether its dry beans, corn, soybeans or wheat, as producers, we need to take a hard look at that. Even if it really doesn't make our lives a lot easier to produce those products, if that's what they want and are willing to pay premiums for that, I think it bears watching."





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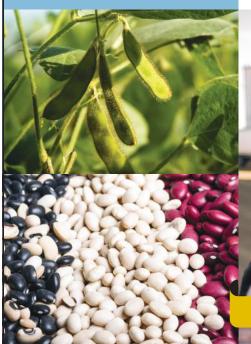
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Consider Storing Your Beans on the Farm

St. Thomas, North Dakota dry bean grower Tom Kennelly has stored dry beans on his farm for about 10 years. He says it gives him a little more control, or flexibility. "For example, last year we didn't have a contract with the company we bought our seed from," says Kennelly, the current president of the Northarvest Bean Growers Association. "When we went to haul them in they said they were only taking contracted beans, so we put them in a bin and

Irinidad

Benham Corporation

about two weeks later another bean dealer called and needed our navy beans. Storing on the farm means I'm not married to one bean processor."

The first time Kennelly stored his beans was when he ran out of trucks during a tough fall and was starting to get hot spots in the trucks. He put them in a bin with air to dry them down and it worked pretty well. Kennelly was even more convinced when an August frost led to discolored beans and large dockage

several years ago. "We threw 'em in a bin, hauled them in six months later and they never docked us nearly as hard."

Another advantage is keeping trucks moving at harvest by avoiding lines at the bean elevator. Kennelly says storing his beans on the farm also gives him more marketing options. "We've had the markets going down and down and down and all of a sudden they (bean dealers) want to go off the board and you're paying them storage, and you have no control over your product," says Kennelly. "And when they come back on (the board), vou're at their mercy. If the market is \$20 and you've got \$1.50 into storage, you have no control over your product at that point."

Minto, North Dakota dry bean grower Jay Gudajtes has been storing black beans on his farm for about 16-17 years, and says the biggest advantage is purely to take advantage of price fluctuations. "If black beans have a more volatile market than pintos in some years, you can't even sell them, I mean there is no price," says Gudajtes. "So you're automatically forced to store them or take basically a salvage price on

them and nobody can afford that. So, you put them in a bin and maybe in one year out of five it'll (price) pop and you can do okay." In addition, Gudajtes says you probably have interest on all that money that you have tied up in beans instead of cash, and you're at risk on all that too.

Another advantage of storing your beans on the farm is that you don't pay for storage. A standard edible bean storage contract expires in April or May, and at that point the grower is asked to price his beans and pay for storage. Gudajtes thinks having his beans on the farm and having control of them means a lot. "If they've got more than enough beans they'll offer you two cents a pound less, and if another dealer needs beans, and you've got them on the farm, you can get that extra two cents," says Gudajtes. "Plus, storage contracts have a 3-5 cent-per-pound redelivery charge, so you can't afford

grower Scott Mund started storing his navy beans in 2005 was because of the long distance he is from



to pay that and haul them somewhere else. It's a disaster to have someone else have a hold of them." One reason Milnor, N.D. Continued on Next Page

a dry bean processor.
At harvest time, hauling beans to either Appleton, MN or Mayville, N.D. was not convenient, so manpower was the main reason he decided to store his beans. Mund's dad was storing pinto beans before he quit growing them in 1986, and says the only thing different about storing pintos is they turn dark. Otherwise he says storing dry beans isn't

much different than storing any other commodity.

"My dad just used an auger back then, but we use a belt conveyor with a bean ladder on the end of it, and store them in a hopper bin," says Mund. "I had the ladder made at MJ Tarp Repair near Gwinner. As soon as we get the aeration fan tube covered in the hopper bin we take all the bean ladders off except one just to try to

slow them down."

Like any other grain,
Mund tries to get his
beans as cold as possible in the fall. He uses
a temperature rod and
checks them on a monthly
basis. "That's probably
the biggest key is to go
up and walk around the
beans and being diligent
in checking them," says
Mund. "But you're never
going to keep them at
30 degrees all summer

long, so you pick a night in April when it's 40 degrees, run the fan for a few hours, and then do the same thing in June when you can find a cool night. We've had more issues storing corn and soybeans than we have edibles."

Mund likes being in control of his product. "I know what I've got and the dealers don't know what I've got so they can't manipulate the price with

Drying, Storing and Handling Dry Edible Bean

By Ken Hellevang, NDSU Extension Agricultural Engineer

Research has shown pinto beans should be stored at temperatures of 40 F or cooler to maintain color and cooking quality. If beans cannot be kept cool, the moisture content must be low enough to permit storage without deterioration at typical

summer temperatures. The recommended moisture content for edible beans to minimize the growth of mold is about 13 percent at 70 F. Pinto beans darken rapidly when exposed to light, so they should be stored in a dark environment.

Following good storage management practices, such as measuring the

temperature and moisture content of the beans at least monthly, is important. Whenever more than a 10-degree differential occurs between the average outdoor temperature and the bean temperature during the fall, the beans should be cooled with aeration. This should continue until the beans are cooled at least to 40 F for

short-term storage and about 25 F for long-term storage.

To minimize the potential for mechanical damage, beans should be handled at moisture contents of about 16 percent or greater and at warm temperatures. Research shows that the potential for mechanical damage of pinto and navy beans

Table 29. Mechanical damage: cracks in the seed coat of pinto and navy beans at selected moisture contents at a temperature of 75 F.

Pinto Beans Damage	Navy Beans Damage
(%)	(%)
4	4
5	4
6	5
9	15
16	22
20	37
26	49
	Damage (%) 4 5 6 9 16 20

Table 30. Mechanical damage: cracks in the seed coat of pinto and navy beans at 16 percent moisture content and selected temperatures between 10 and 75 F.

Temperature (F)	Pinto Beans Damage (%)	Navy Beans Damage (%)
75	6	5
60	11	13
45	16	15
30	21	18
20	29	26
10	41	32

all the beans being in their facility," says Mund. "It also frees me up a little bit to market them elsewhere. If your beans are at an elevator, you're committed there. Storing my beans leaves my options open, and gives me some leveraging power."

As of the end of July, Mund still had 2015-crop beans in the bin, and says for the last year to year-and-a-half, he's had a little more than a million pounds of beans on the farm.

Kennelly puts his beans in a bin with some kind of air. He recommends going to the top of the bin to make sure you have good air movement. "If they go in dry, we run the fan to cool them and when we get the change in the season, we change the air in the bin," says Kennelly. "We go in with a conveyor and out

with a conveyor-I'd stress the importance of that."

About one-third of Gudajtes' storage is in a bin with an air floor, where he stores beans that are wet or need conditioning. For normal harvest conditions he uses flat storage in sheds. Gudajtes has stored black beans for as long as five years, but says stored dry beans need to be constantly monitored. "Even the smallest bit of

moisture in the bin can cause mold to start," says Gudajtes. "If the vent blows into the bin and water goes into the vent or the lid opens up in a rain storm, you're going to have a disaster. So you have to constantly monitor and make sure your bins are sealed and tight. Make sure all the screens are in your vent so that no birds can get in."

Continued on Next Page

increases at bean moisture contents of about 15 percent or lower (see Table 29). Research also shows that the potential for mechanical damage of pinto and navy beans increases at lower bean temperatures (see Table 30).

Belt conveyors are preferred due to their gentleness in conveying. A bean ladder should be used inside storage bins to reduce impact

damage. The speed of auger rotation should be reduced and augers operated "full" to minimize damage. Elevator legs need to be adapted for handling beans, including reducing the discharge velocity and utilizing a method of gently slowing the beans at the bottom of sprouts.

Natural air drying will work well for edible beans during mid-September to mid-October in North Dakota.

Table 31. Minimum recommended airflow rates and estimated drying times for dry edible beans using a natural air drying system from mid-September to mid-October in North Dakota.

Moisture Content	Airflow Rate cfm/bu	Airflow Rate cfm/cwt	Estimated Drying Fan Time days
22%	2.5	4.2	23
21%	1.6	2.7	30
	2.0	3.3	24
20%	1.5	2.5	28
	2.0	3.3	22
19%	1.5	2.5	28
	2.0	3.3	22

Based on average climatic conditions, the beans are expected to dry to about 12 to 14 percent moisture if the fans are operated continuously. Shutting fans off during the warmest and driest part of the day will permit drying the beans to about 15 to 16 percent but will lengthen the drying time. Fans should run during the night with higher humidity to permit drying the beans nearer to the desired final bean moisture content.

Adding supplemental heat reduces the final moisture content of the beans and likely will result in beans dried to a moisture content lower than desired. Shut fans off during foggy or rainy weather, but do not leave the fan off for more than a couple of days to minimize the potential for bean spoilage. Recommended minimum airflow rates for various moisture contents

and the corresponding estimated drying times are shown in Table 31.

The static pressure associated with moving air through pinto and navy beans is equivalent to that of soybeans. Design the drying system using the data for soybeans.

Edible beans require special care when drying with a high-temperature column dryer. The relative humidity of the drying air should not be lower than about 30 percent. Normally, the drying should occur with the air heated less than about 20 F above the outdoor air temperature to keep the relative humidity above 30 percent.

The beans need to be monitored continuously to assure they are not being damaged. The drying process needs to be slow to minimize damage to the beans and will be slow in comparison with drying cereal grain.

Gudajtes estimates annual storage losses of about 2-3 percent, mostly due to moisture and mold. He recommends going up and walking on the stacks just to move them around and let the beans breathe a little bit. "We try to cool the beans down in the fall even if they're dry," says Gudajtes. "If it's in flat storage we've got tubes that we put underneath the pile and if it's in a bin it's got an air floor. And you have to use conveyors to move beans-you can't move them any other way."

Another tip Gudajtes has for storing dry beans is to remove as much dirt and foreign material as possible, such as pods and leaves. He runs all his beans through a big screener.

Kennelly has stored navy beans for as long as a year-and-a-half, but cautions farmers that every time you move beans, you're going to damage them, whether you're putting them in a bin or whatever you do. He doesn't screen his beans going into storage but also says he will not store really dirty beans.

For farmers considering storing their own beans, Gudajtes says you have to be willing to condition them and you have to understand that will slow down your harvest a little bit. But, he says it's perhaps no worse than hauling to a bean plant which is also conditioning as they put them in a bin. And Gudajtes says when you start storing your own beans, you're going to have to have a banker that's going to work with you, if you borrow money. "And you're going to have to have a good facility where you can keep those beans fresh. If you lose quality, you're absolutely going backwards."

Gudajtes also says the fewer times you handle beans the better off you are, and you don't want to be in the bin when it's 20 below zero. "You'll crack half the beans, so you have to have the right weather conditions," says Gudajtes. "And there are small windows to haul beans. You have to be ready to go, you have to have your help and your trucks lined up. It's not for the guy that can haul one load a day by himself and hope to deliver his whole crop in a week."

Mund thinks more dry bean growers should be storing their beans but they're scared to do it. "Ever since we started growing beans up here back in the 1960s and 1970s, it's kind of been a tradition," says Mund. "And I think some people are scared about damaging their beans, or that their pintos will turn dark and be worth nothing." He recommends storing beans in hopper bins just because they don't have to be augured out, although he has stored beans in a full-floor bin at 20-22

percent moisture, dried them down to 17 and augured them out without any issues.

Mund says what most growers don't realize is that those beans that they haul to the elevator weren't shipped out within two months of them hauling them in either. "I'm sure there are still pinto beans in the bin now that have done the same thing in the buyer's bin that they would do in the producer's bin," he says. "I think my beans are probably storing better in a 5,000-7,000 bushel hopper bin than in a 250,000 or a 300,000 bushel bin."

Kennelly has this advice for any grower considering on-farm storage. "Store them! The more we do it, the more the growers are in control and I think we'll see a market effect. Just be careful how you handle them."

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Northarvest Promotes Beans at School Nutrition Conference

The Northarvest Bean **Growers Association** exhibited at the School **Nutrition Association** Annual National Conference (ANC) July 11-13 in San Antonio, Texas. The conference attracted more than 6.500 attendees, including school nutrition professionals, industry members and representatives from allied organizations. An estimated 1,400 attendees visited the Bean Institute booth.

The exhibit hall was filled with 350+ companies sharing a variety of products, resources, and inspiration to improve K-12 school nutrition operations. Northarvest's booth design featured newly created pop-up banners, bean display jars, and recipes.

Amy Myrdal Miller and Megan Myrdal, from Farmer's Daughter Consulting, represented the Bean Growers at ANC. They distributed a variety of materials to attendees including five newlydeveloped school recipes, Bean Institute website promotional cards, and three home-based recipe cards. Attendees who provided their contact information were also provided a "Cook With Beans!" wooden spoon. This promotion was huge-



School nutrition professionals showing their bean love and appreciation for their new wooden spoons.

ly successful with attendees swarming the booth to get their spoons resulting in a new database of over 72 school nutrition professionals.

Amy and Megan had great conversations and educational opportunities with school nutrition professionals. Many visitors indicated that they need help getting students to eat more beans and were appreciative of the recipe ideas and simple strate-

gies offered. Some of the most common themes heard on what is working well with beans were salad bars, build-your-own burrito/taco bars, and refried beans. Many shared that black beans are the most difficult bean-type to get kids to eat.

ANC is a unique conference in the fact that there are several hours that are purely devoted to exhibit time without competing education sessions,

including two hours that are reserved for directors only. In conversations with booth visitors, they were very grateful for the support from the Bean Growers and the resources created to help school nutrition professionals make beans appealing and delicious for kids.

Overall, ANC was a great conference for the bean growers. The newly acquired contact information from the lead retrieval system will be a great way to continue engaging with school nutrition professionals and sharing our school resources. It also provided confirmation that this is an important audience to continue supporting because, 1) national school meal regulations require schools to offer at least a half cup of legumes each week in the School Lunch Program, 2) many attendees expressed a need for help with serving beans to kids, and 3) this audience plays a key role in creating and offering bean dishes to millions of students every school day. Many also serve as conduits to food and nutrition information for homes, which amplifies our bean promotion efforts beyond the school into the home.

Soybean Cyst Nematode and the Threat to Dry Beans

By Sam Markell, Berlin Nelson, Julie Pasche and Guiping Yan, Department of Plant Pathology, NDSU

In July 2016, Soybean
Cyst Nematode (SCN) was
confirmed in a commercial kidney bean field in
Minnesota. Damage was
already severe and areas
of stunted and yellowed
plants occurred in patches
in the field. Extracted
roots were covered with
the small cream-colored
and lemon-shaped female nematodes (cysts),
which were busy extract-



A patch of yellow, stunted plants in a kidney bean field in Minnesota, infested with SCN. (Photo: Guiping Yan, NDSU)

ing nutrition out of the plant to feed the 100+ eggs in the cyst. The kidney beans in this field will suffer yield loss this year and it is possible that dry bean and soybean yield will be compromised for years to come. While the threat that SCN posed to dry beans was known, to the best of our knowledge this is the first time SCN damage was observed in a commercial kidney field and reported to us by the grower. It will not be the last.

Soybean Cyst Nematode is a parasitic worm native to Asia that was first identified in the United States in North Carolina in the 1950's. Once in the United States, the pathogen began to spread to new areas



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of soybean production and slowly erode soybean vields as it moved. Within a few years SCN was identified in the Boot Heel of Missouri, setting up residence in the soybeanrich growing region of the Mississippi Valley. By the early 1970's SCN had spread hundreds of miles north to reach Illinois and south to reach Louisiana. In the 1980's, a hot spot was identified in northcentral Iowa and southern Minnesota, from there it would spread north and west into the heart of the Northarvest bean region.

The systematic and unstoppable spread of SCN is primarily a function of a few amazing features of its well-adapted biology. Perhaps most importantly is the development of the cyst itself. When the female worm is fertilized by the male, she will begin to swell with hundreds of eggs. At her largest, she will take on a lemonshaped form and swell to a point that you can see her with the unaided eye. Eventually, the female worm turns from creamcolored to dark brown and dies. However, her body becomes a critical protective structure for the eggs and is commonly called the 'cyst'. The cyst can be moved many miles with soil on equipment, in floodwater, in dust storms, on birds, on boots and may other ways, all while protecting the eggs. Once an egg hatches the



Small cream-colored females observed on infected dry bean roots (Photo: Guiping Yan, NDSU)

emerged male and female juvenile worms take on their 'worm' shape (called vermiform). When SCN is in its second-stage juvenile form (called J2) the nematodes enter the roots of a susceptible plant, reproduce, and the female will again begin to swell into a cyst. In the Northarvest region this cycle likely takes place two-to-three times a year, which can quickly result in extremely high levels of eggs in a field.

While SCN is primarily recognized as a soybean pathogen, the potential impact on dry edible beans has not been as clear. In a series of experiments funded by the Northarvest Bean Growers Association, NDSU plant pathologist Dr. Berlin Nelson demonstrated that all market classes may be susceptible to SCN, but not necessarily

to the same degree. To determine how susceptible dry beans were to SCN, Nelson's team grew commonly grown varieties of pinto, navy, kidney and black beans in greenhouse pots with SCN eggs. After several weeks, Nelson's team extracted the plants and determined the 'reproductive index', which essentially tells us how well SCN was able to parasitize the different market classes of dry beans (0 meaning no reproduction and 100 being equal to the reproduction on a susceptible soybean). In these experiments, the reproductive index on varieties of black beans was relatively low (ranging from single digits to 20's), moderate on the pintos and navys (20's to 60's) and high on kidneys (100 +). While this test only looks at pathogen reproduction, the results conclusively demonstrated that all dry bean market classes can be parasitized by SCN, but kidneys are likely to be the most impacted.

Despite the previous work by Nelson's team, an infected commercial kidney field had not been confirmed in the Northarvest region until this summer. While this field presents us an opportunity to learn many things about SCN in a commercial field, it also serves as a reminder that it is important for dry bean growers to be aware of SCN and to sample their fields. Early identification of SCN is the first step to managing the problem and the time is right. The best time to sample for SCN is from right before harvest until the ground freezes, so the time is right!

Budget Cuts Will Affect North Dakota Agriculture

The North Dakota Legislative Assembly was called into a special session by Gov. Jack Dalrymple in early August to remedy a shortfall in the General Fund for the current biennium. Without corrective action, the General Fund would fall \$310 million short by the end of the current biennium, June 30, 2017.

All North Dakota state agencies, including the North Dakota State University Extension Service and the North Dakota Agricultural Experiment Station (AES), had already given back some of their appropriated funds for this biennium. The Director of the Ag Experiment Station, Dr. Ken Grafton, gave back \$3.2 million due to Gov. Dalrymple's 4.05 percent allotment (cut) in February, from the main station and the Research Extension Centers (RECs). The AES met the initial 4.05 percent allotment by dealing with certain vacancies that existed and by reducing some operating dollars.

For the 2017-2019 biennium, all state agencies have been ordered to submit a budget equal to 90 percent of the current biennium, in other words, a 10 percent cut. For the Ag Experiment Station, and the RECs. that's an additional cut of almost \$8 million. Grafton says 80 percent of his budget is salaries and fringe benefits, so that leaves very little on the margins in terms of dealing with a budget cut of that magnitude in terms of reducing things that would not necessarily effect positions. According to Grafton, "Yeah, it's going to be a pretty tough situation for us."

It could mean 20-22 positions would be cut. As of this summer, Grafton had about 17 vacancies.





Dr. Ken Grafton

Dr. Chris Boerboom

NDSU has implemented a voluntary, early retirement incentive program, which Grafton is hoping will help him meet what he needs to do to address the Governor's requirement for a 10 percent budget cut.

"We could cut operating and equipment dollars that we fought really, really hard for in the legislature for the last several years to get increases in," says Grafton. "We could eliminate those but then our faculty and scientists would have a difficult time obtaining equipment and graduate student support and

things that allow our research programs to move forward. So, we're going to have to look at positions, at least as a part of it."

Grafton is looking at this as an opportunity but he says it's also important to look at the situation strategically, as best they can. "If we just deal in vacancies and retirements, those aren't necessarily the positions we would want to see eliminated," says Grafton. "One of the things we have to do is make sure our core programs that are critical to farming and ranching enterprises in North Dakota, and to the ag industries in North Dakota, are strong and will be strong for the future. We have to look at what is central to our mission, what are we doing that perhaps we shouldn't be doing, or is less important to us and move forward in that respect. And then how do we address the vacancies that we currently have to best fit our overall goal?"



NDSU Extension Service Director Dr. Chris Boerboom gave back \$1.2 million to meet the 4.05 percent cut in February, and the additional 2.5 percent cut will amount to another \$750,000 for the current biennium. The 10 percent smaller budget for the 2017-2019 biennium will amount to another \$2.7 million. Boerboom says he will need to look more closely at continuing to hold vacancies open and digging deeper on operating expenses to make this budget.

Both Grafton and Boerboom are taking some comfort in the fact that the State Board of Agricultural Research and Education (SBARE) has made restoring the base budget for both Extension and the AES its No. 1 priority during the 2017 Legislative Assembly. "Yes we are looking at how we would make a 10 percent cut," says Boerboom. "But at the same time I hope our programs, and the value of our programs, are

appreciated."

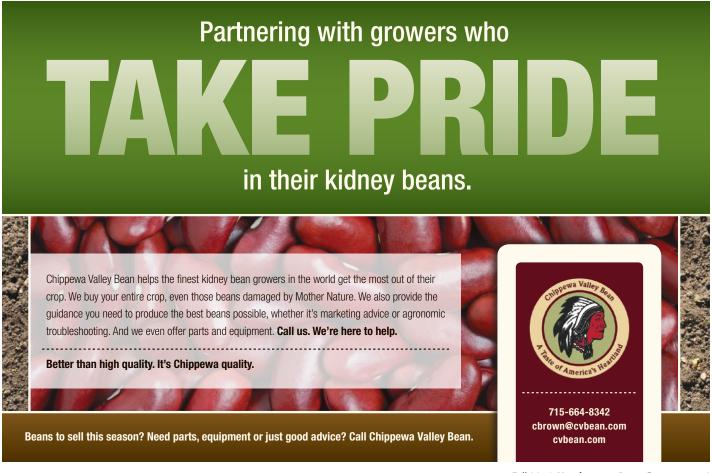
Like Grafton, Boerboom says Extension is about 80 percent salary and fringe benefits, in terms of its budget. Twenty percent is operating expense and equipment. "We really can't cut enough out of operating to make that type of budget reduction so we will have to look at positions," says Boerboom. "And we'll have to prioritize positions, consider our core mission, and what our most critical areas are, if we get to that point."

Boerboom says the challenge for Extension is that it serves people in so many different ways. "It does become a challenge to say what our true core is, but we have a core in agriculture," says Boerboom. "We also have a core in 4H, nutrition and health, and we have a smaller program, but I think it's really important, in community and leadership."

Boerboom says he's probably

looking at about eight positions as possible cuts, and will try to use a combination of current vacancies and early retirements. "We would hope we're not in a position where we would have to lay somebody off, and we've got to look within those ag programs," says Boerboom. "Extension in North Dakota will remain strong, but it's always hard when people have fewer resources to say that 'we're better now.' If we have a smaller budget, we're still going to work as hard as we can to serve people, but if we have more resources we can do more for North Dakota-that's the bottom line."

Grafton calls the budget cut more of a correction than anything else and says the state's potential is "absolutely phenomenal, not only from the oil industry but from the ag sector as well, so I think the best times are yet to be had."



Brazil Beans Turn to Gold

A recently concluded U.S. Dry Bean Council trade mission and crop tour to Argentina and Brazil confirms crop shortfalls in both countries. Argentine dry bean plantings were huge this year, but yields were an estimated 30 percent below average due to drought. At the same time, Brazil, the largest bean growing and consuming nation in the world, is also facing a dry bean crop shortfall due to poor weather conditions in growing regions.

The Brazilian government has authorized dry bean imports in order to reduce the price of beans in supermarkets. When this news first broke in late June, this was to apply to beans originating in Argentina, Paraguay and Bolivia. However, Brazil's Foreign Trade Chamber (Camex) zeroed bean import tariffs for any country for 90 days. The Ministry of Agriculture says the measure aims to increase the supply options and therefore reduce prices. Brazil hopes to rely on suppliers from China, USA, Ethiopia and Canada, which typically pay a 10 percent rate.

According to USDBC international representative Randy Duckworth, the Brazilian government will drop the 10% tariff on



A popular meme viralized on Brazilian social media today: "Dry bean transportation" (armored cars)

non-Mercosur origin dry beans through November. Duckworth says there is a lot of interest among potential buyers in U.S. pintos, blacks, and cranberries.

According to the Brazilian Institute of Beans, the price increase is due to drought in most states where beans are grown. Brazilian agribusiness consultant, and Minnesota native Kory Melby reports that Brazil's third crop was a flop. "The carioca beans tend to be a third crop and need to be irrigated. One of the main growing areas in northeastern Brazil was ground zero for the drought and pivots could not keep up," says Melby. "The other third-crop carioca area is Parana in southern Brazil where crops failed due to too much rain."

Bean prices have risen more than 33 percent since the first of the year, and are up 42 percent from a year ago. Duckworth led a USDBC tour to Brazil and Argentina from June 13-24, during which time the price of black beans rose 20-25 percent.

This dynamic has created a high demand, high price, sellers' market, particularly in Brazil where carioca bean prices (the most popular Brazilian bean) have reportedly reached a record-high, close to US\$3,000/MT, or \$130-\$135 per hundredweight (cwt). According to Duckworth, this is almost \$100 per cwt more than the price of U.S. pinto beans. He says black bean prices are about \$1500 per MT in Brazil's wholesale market. Melby says the typical family of four or

five in Brazil might eat as much as 10 kilos (22 pounds) of edible beans per week.

Brazil traditionally turns to Argentina as their supplier of choice for dry beans, and likely will for its black bean needs, but Duckworth says U.S. black beans are better priced than Argentine blacks, and he would argue that they're better quality. "U.S. black beans are priced very, very competitively right now in Brazil, as are pinto beans," says Duckworth. "Pintos are a little harder sale because people aren't used to them. Pintos are larger than Brazil's carioca bean, but taste basically the same after cooking."

Brazilian buyers are, for the first time, admitting the crop shortfall. Duckworth cites Brazilian government statistics that show dry bean production of 2.8 million tons, about 500,000 tons below normal production. During the crop tour, Duckworth spotted Brazilian buyers visiting Argentine growing regions to purchase beans directly from growers. Duckworth says all signs indicate Argentine bean growers are looking at a seller's market at least until November-December. when the new Brazilian crop will enter the market.

Brazilian traders have told USDBC that in addition to sky high carioca prices, they are paying upwards of \$950/MT for cranberry beans, and \$850/MT in cash prices for black beans. USDBC feels that Brazil will buy every pound of the Argentine crop possible.

USDBC executive director Rebecca Bratter says this means that its yearlong efforts to promote US pinto beans (called feijao tigre in Brazil) as a substitute for Brazilian carioca beans, has a real chance of creating new US dry bean sales to Brazil. But this opportunity is not limited to pinto beans. With Brazilians' need for

dry beans so strong, the Argentine crop falling short, and traditional Brazilian sources commanding record prices, Bratter is optimistic we will sell U.S. dry beans to Brazil this year.

Duckworth says the USDBC is trying to introduce pinto beans as a new variety to Brazil's foodservice sector, which is huge in Brazil. "We've done some research that shows consumers actually have a slight preference for U.S. pinto beans versus cariocas once they're cooked," says Duckworth. "They like the larger size and texture and how fast it cooks.



Carlos Domenico Tulio, Operations Manager at Risotolândia, a Brazilian foodservice company.

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The Benefits of Cover Crops

Reducing erosion and better weed control are two of the benefits of implementing cover crops on your operation. But did you know cover crops could also benefit your bottom line? Les Puppe from Hensel, North Dakota uses covered wheat ridges to prevent his topsoil from blowing.

"Around Hensel it's very highly erodible so anything I can do to keep the soil from blowing away. I also get better yields," says Puppe. "I have covered wheat ridges before even just using my 4-wheeler and a cheap, little Fleet Farm spreader. Then when I hit the grass spray in the pinto



Dr. Abbey Wick

it'll kill it anyway. I use bin-run wheat seed for my cover crops."

beans

North Dakota State University Extension Soil Healths Specialist Abbey Wick is a big fan of cover crops, especially cereal rye. She tells Northarvest that putting cereal rye with the air seeder can replace passages with the chisel plow.

"There are farmers I work with now who have put cereal rye on almost all of their acres following soybeans," says Wick. "They figure between tractor depreciation, diesel fuel, time and maintenance, they save \$30 an acre by using cereal rye as a tool versus going at it with a chisel plow. Plus, that doesn't even include the benefits of the weed control cereal rye provides in the spring time."

Wick explains that farmers who currently use cover crops are sold on them and they are not going to change their practices due to tight margins.

"It's not always money going out with cover crops. Sometimes there's money coming in. With diverse mixes of cover crops, sometimes it's hard to

pencil out with the shorter growing season," says Wick. "However, using cereal rye, a winter annual, can be very advantageous because you can drop a tillage pass, get growth in the fall to control erosion and then again in the spring to control early season weeds. Just be sure to take a look at herbicide residuals and also the crop you will go into the next year before picking your cover crops."

NDSU Extension soil specialist Dave Franzen says most dry bean growers have at least 30 days, and sometimes up to 60 days after harvest, to get something growing in



those harvested fields to act like a cover. "If you cut and windrow beans you're disturbing a lot of soil and the field is really bare afterward and you really need some help," says Franzen. "But even in the straight-combined fields, there's not a whole lot of residue left behind, so getting some kind of cover crop established I think would be pretty important."

The soils in the dry bean region of this area are pretty fragile. Franzen says

topsoil, if it exists at all, is very shallow and it blows really readily. "That's one of the reasons why it's a good dry bean producer because the soils are a little bit lighter. The tilth of the soil is a lot nicer." Franzen says there's no reason to run a ripper through those soils. "You know you're not really burying the residue at all. I would say that the tillage after dry beans should be only establishing a cover crop and leave it alone until spring."

Franzen says it's hard for

him to even imagine that he has to tell people about the importance of cover crops. "They figure grandpa did it this way, this is the way I've always done it, and this soil is going to last forever. I guess everybody has a fantasy and that's what some people's fantasy is."

Some growers are reluctant to plant cover crops because it's an extra step, and they're worried about taking some moisture out of the soil, but Franzen says the problem in the

northern Red River Valley this year is too much water rather than not enough.

MONITOR P & K

Dry beans don't take out a lot of phosphorus and potassium (P & K) but Franzen says it's important to soil test after harvest so the crop that follows can benefit from that. It's also important to know what the P & K levels are prior to planting dry beans. "Dry beans are particularly sensitive to low potassium levels, especially those grown on really eroded, sandy soils like Arvillas, the sandy soils west of the Red River Valley," according to Franzen. "Knowing what those levels are so that a nice broadcast application before planting would be important. Soil testing is the key."

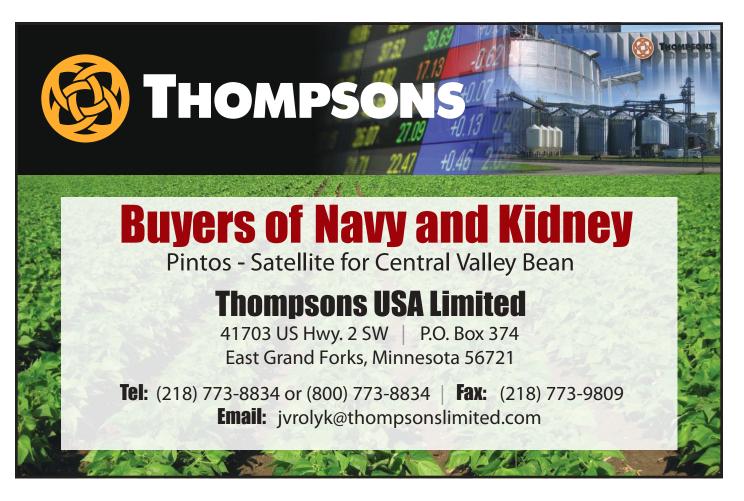
CROP ROTATION

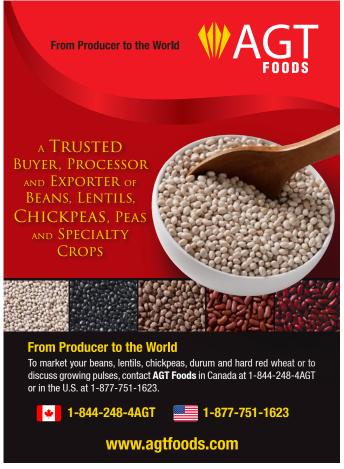
With the "kitchen table" agronomy and economics the way they are, Franzen says there are dry beans in rotation with potatoes and small grains are looked at with disdain because they don't pencil out quite like the others do. "But there are certain rotationenhancing properties of small grains that makes the other crops do better," says Franzen. "And also if you have two low-residue crops in the rotation, such as dry beans, having cover crops on the top of your mind is really critical in order to save the soil you have left."

Dry Bean Cover Crop Advice

If you're new to using cover crops, especially with dry beans, Wick has this advice:

- Get something established before planting dry beans in the spring or after harvesting dry beans in September. Wick says, depending on rotation, farmers can probably plant 30 to 40 pounds of cereal rye after a small grain crop. Just be sure to give it two weeks and keep the field clean prior to planting to break the green bridge. Then have a plan for how you will manage it in the spring before planting dry beans. After harvest in mid-September, there's not a lot of time to get something to grow, but because there's so little residue after combining beans, farmers want to get something out there. Even if it's a poor stand of cover crops: something that's rooted, providing resistance to wind erosion.
- Terminate the rye when you are comfortable with conditions. With cereal rye in the spring, farmers want to leave rye standing and not
- work the ground or plow it. Planting into standing residue will be easier rather than working it and trying to deal with the residue when it's not attached to the soil. Farmers would plant dry beans into the stubble. If you use a cover crop and plant into small grains the following year, Wick recommends all broadleaf cover crops. That's small seed like a radish or a turnip. The seeds are small so they'll germinate in fairly dry conditions and you'll have rapid growth and it will be cool season. Make sure you always consider the following year's crop when using cover crops to avoid any volunteers that can create issues, like volunteer cereal rye in a wheat seed production field.
- Start with 20 or 200 acres, not 2,000 acres. Wick says planting a smaller acreage of cover crops is helpful in seeing how cover crops work and if it's a challenge for equipment. It can help growers get a feel for the crop





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Farm Kids Plug Into Plant Pathology

North Dakota State University plant pathologists Sam Markell, Julie Pasche and Andrew Friskop were graduate students at NDSU in plant pathology, and have become part of the staff. Markell and Pasche are now mentoring four graduate students with farm backgrounds in Minnesota and North Dakota, two of whom have already become part of the plant pathology department at NDSU.

Chryseis Tvedt grew up on her parents' farm near Benson, Minnesota, which produces primarily corn and soybeans. She is a Master's student in plant pathology at NDSU, and was also hired as a research specialist in the plant pathology department in May. Tvedt's bachelor's degree,

from Southwest Minnesota State University, is in agronomy and she decided to focus on plant diseases in her Master's work at NDSU because of its huge economic importance to growers. She has completed her classes but now needs to finish her thesis, and this is her third summer of field trials. "I really like the program (at NDSU) and how it meshes

scientific lab work with field trials and more applied things," says Tvedt. "I work with fusarium and rhizoctonia root rots of dry beans and I focus on in-furrow fungicide applications to manage root rots."

Amanda Beck hails from a farm near Minot, North Dakota that raises winter and spring wheat, durum, corn, soybeans, flax, canola, and sometimes peas. Beck earned her undergraduate degree in crop and weed science at NDSU and just switched over to her Ph.D. in May, working on beans for her thesis in plant pathology. "I'm working with common bacterial blight in dry beans and we're looking at two different things-bacteria side options as

Continued on Next Page



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Amanda Beck

well as bean architecture types to see what kind of yield impact they have when beans become infected with CBB and drop their leaves," says Beck. "So we're analyzing that and trying to predict yield." For her Master's, Beck worked with pea seed-borne mosaic virus.

Beck's interest in plant pathology is the result of working for NDSU Extension weed scientist Dr. Brian Jenks at the North Central Research Extension Center in Minot for several summers during high school and college, and while working in NDSU's plant pathology department. "I kind



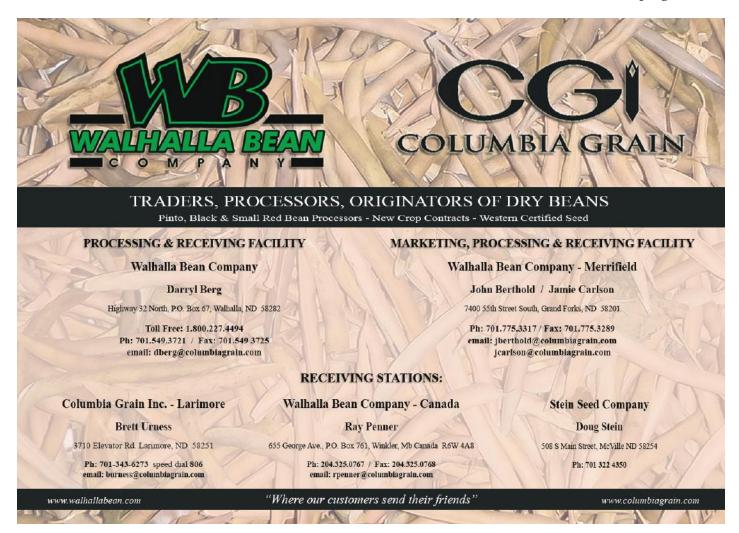
Jessica Halvorson

of realized that diseases are kind of a new frontier and a growing problem for growers," says Beck. "A lot of the weed problems have already been solved so I really want to be part of that solution. I really enjoyed the research and being able to go to growers and say we have a new solution for you-that's something I am really very passionate about."

Jessica Halvorson grew up on a farm west of Milnor, North Dakota, near Delamere. Her parents grow primarily corn, wheat and soybeans. She began working as a research specialist at NDSU just before earning her Master's in May 2015, and is now helping Markell and fellow Extension plant pathologist Andrew Friskop with their trials, managing data, and making sure fungicide applications are made. Halverson

earned her undergraduate degree at Valley City State University, with a double major in biology and health science. "During the summers, I worked for Mycogen Seed, on the corn breeding crew-that's what really sparked my interest," says Halvorson. "Plus I grew up on a farm so I always had that green thumb."

Halvorson completed her Master's in February 2015, and was hired by Markell in May 2015. She also worked as an IPM scout for NDSU Extension plant pathologist Marcia McMullen in the summer of 2012. For her Master's program,



Halvorson worked with dry bean anthracnose, a fungal, foliar disease. "I worked with the seed-toseedling transmission of the disease. Anthracnose is a seed-borne disease so I worked with the molecular side of things and then I also did some race identification," says Halvorson. "I had field trials in Canada, and I also developed a molecular assay that detects the pathogen in the seed and stem tissue."

In her job as a research specialist, Halvorson researches fungicides and seed treatments for plants, everything from soybeans, canola, and flax, to dry beans.

Aside from working as a field scout, Halvorson



**Brandt Berguis** 

says she never really had much experience with plant pathology. "I guess what spiked my interest in pathology was when I took microbiology in my undergraduate program," says Halvorson. "I thought if humans can get sick plants can get sick too. I knew I wanted to do something with plants after college, so I just kind of put two and two together. Being able to be outside and doing something that I love is what I've always wanted to do."

Like Markell and Pasche, Brandt Berguis came to NDSU on an athletic scholarship, and threw for five years on the track team. In 2013, Berguis

Continued on Next Page



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began working in plant pathology at NDSU. The Rosemount, Minnesota native earned his undergraduate degree this past spring in crop and weed science and biotechnology, and started his Ph.D. this summer under Markell. "I was a biotechnology student for a little while until I started working in plant pathology and once I saw the ag route, it was more appealing to me, I enjoyed it more and switched into it."

While he grew up in a suburb of the Twin Cities, Berguis did spend some time during the summer on his grandparents' farms near Cosmos, Minnesota.

Working in the plant pathology department

convinced Berguis to switch his major, plus he was a McNair Scholars student which allowed him to do dry bean research under Markell. Friskop was also his comentor. "The last couple years I've been working on dry bean rust as part of my undergrad project," says Berguis. "The McNair Scholars program allowed me to make a presentation on dry bean rust in Maryland, and I got to fly to Washington, D.C. and speak to lawmakers about my undergrad research. I've learned a lot about rust but it seems like the more I learn, the less I know."

Berguis' research included everything from collecting bean rust to single-postule isolates to growing differentials. "The biggest thing is sometimes the complications you learn from doing research. Sometimes it takes a lot of work and a lot of time; things go up and down."

Currently Berguis is trying to determine the races on the 57 isolates of dry beans, and doing counts on how many differentials that were grown in the greenhouse, all of which will be inoculated to get the races.

While farmers may know Markell, Pasche and Friskop, graduate students like these are making big contributions. Markell is impressed with the talent these students have. "We've got a lot of farm kids from Minnesota and North Dakota who really are sharp and really want to make a difference, and we've been able to attract a lot of them to NDSU. and there are four of them right now that are working on dry bean pathology, and it's kind of amazing," says Markell. "A lot of the research that comes from Northarvest goes right to them and their work. These students are really working for the growers and so a lot of the information NDSU puts out on beans really does come from the hand of these students."

Following the anthracnose epidemic a few years ago, Markell says Jessica Halvorson was the one that did the work to show how easily that pathogen



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spread from a seed to a plant and then spread in the plots. Also, following a hail storm in Walsh County this year, Amanda Beck set up three bacterial blight trials where she sprayed three different compounds in those damaged plots. "With good students who are ambitious, sometimes it's them coming to us with the ideas," says Markell. "And really, it's working for the growers. It's really to get data in the growers' hands. They're going to make a difference long after Julie and I are gone."

While she sees advantages to having students from diverse areas, Pasche says there are also a lot of advantages to having local students. "Not

only is this group a very hard working group but I think it's the local connection that also makes them maybe see what influence they can have," says Pasche. "They've grown up seeing researchers and Extension professionals on their own farms or in their own experiences so they see that direct relationship. It's very obvious to them what impact they can have."

Pasche says these graduate students understand that what they're doing is intended to impact growers, both on a short-term and long-term basis. "These are the people that are doing a lot of the hands-on work. They're the ones that are out in the field digging, and

spraying, etc.," says Pasche. "And I think part of the bonus of having these local students is there's a fair chance that they're going to stay somewhat local, so the growers are going to see them, maybe on their farm or at least in research projects in years to come. Our hope is that these people will become our colleagues. Jessica and Chryseis have already done that."

The Chair of NDSU's Plant Pathology department, Dr. Jack Rasmussen, says all of their students are absolutely critical to its research efforts. "They put in long hours, nights, weekends, up early to spray-whatever it takes to get the job done," says

Rasmussen. "It's just a pleasure. They're so much fun, they're so enthusiastic-it just lights a fire under everybody to have such good students. We're very happy with our students, and very proud of them."

Rasmussen says a lot of these students want to stick around if they can, if there are opportunities here. Some move on. "Some of our former students are faculty at places such as Purdue University and the University of Illinois, so I think we have top-notch students," says Rasmussen. "The students who come here and have success quite often want to come back. It's a good farm system."



## **Update From Mexico**

After two straight years of adequate rain and good dry bean crops, Mexican growers are wondering what this year will be like. The spring/summer cycle, when beans are planted in July and harvested in September and October, accounts for approximately 75 percent of Mexico's annual dry bean production.

U.S. Dry Bean Council representative in Mexico City, Raul Caballero, says Mexico has experienced a number of droughts over the last few decades and occasionally has one or two good years with rain. "Those two years were 2014 and 2015, so the exports of U.S. dry beans to Mexico have been down," says Caballero. "But, because this is cyclical, it is likely that we might have a drought, but it's difficult to say."

In early August, Caballero said that SAGARPA's closing numbers for the spring/summer planting season showed more than 23 percent of the acres in Zacatecas will not be planted with the crops programmed. These fields will be planted with feed crops, due to the lack of rain. The crop with the largest acreage is dry beans, with nearly 499,000 hectares, but that is 16 percent less than the programmed acreage.

During June and July, Zacatecas received its lowest rainfall in three years. Total programmed planting for the springsummer cycle in Mexico is estimated at slightly over 1.5 million hectares, slightly less than last year. SAGARPA projects this year's dry bean production in Mexico to be 28 percent above 2015.Late dryness in 2015 resulted in a somewhat smaller crop than expected in Mexico, which prompted a sudden boost in exports from the U.S. The shorter crop caused dry bean prices to rise in Mexico and prompted the government to increase the amount of import permits for beans from non-NAFTA countries, from the usual 100,000 metric tons, to 150,000 metric tons. Caballero thinks these international permits are the Mexican Department of Commerce's strategy to try to leverage the price of beans. "Because of the availability of beans worldwide, we don't think those permits will be used," says Caballero. "Mexico is taking the beans from the U.S. and we think they will continue importing those beans, and we'll (Mexico) be getting ready for our September/October crop and see how it comes."

Mexico imported 102,500 metric tons of dry beans in the first six months of 2016, a 173 percent increase from the 37,500 MT imported in the same period last year, according to the National Service of Agri-Food Information.

SAGARPA's forecast of final dry bean inventories at the end of September 2016 will be 76 percent lower than in 2015. SAGARPA pegs ending stocks at 91,000 metric tons, and estimates national bean consumption at 1.1 million tons. While quota permits continue to be available to import 150,000 metric tons of beans from non-NAFTA countries, the Mexican government continues to show that no permits have been assigned and no volumes have been imported from such countries.

After the announcement of the need for beans in Brazil, quota permits in Mexico became less attractive since Argentina and China, which are countries that could sell beans to Mexico, increased prices and were expected to sell their beans to Brazil. Caballero says the high price of U.S. beans is still a factor that could make Mexican importers try to import some cheaper beans from China if necessary.

#### BEAN QUOTA PERMITS FOR COUNTRIES OUTSIDE NAFTA

The list of Non-NAFTA Quota definitive permits allocation was released in June and there is a new company included: Bo-

dega de Granos El Alazan, which has been authorized to import beans from countries outside of NAF-TA, the maximum volume per company of 12,500 MT. This update indicates that only Digrava, El Alazan and one other company named Importadora y Exportadora San Blas, from northern Mexico, have the permits. Seems to be that the company located in Reynosa Tamaulipas, named Comercializadora Inter-Home, has not been granted the permit.

This year's bean quota was announced March 29th, 2016 in the Federal Register and it was increased only for this year from 100 to 150 thousand MT and is valid April 1 through November 30th, also only for 2016. The increase was because of the 2015 lower production and to avoid high prices. Rules include:

- 1. Importers have to present proof of purchase with the application to obtain the permits.
- 2. Maximum volume per company or individual will be 12,500 MT this time, however the normal is 25 MT.
- 3. Each company or individual will have 45 days from the date the permit is issued, to import the beans

#### **CHEAP PESO**

The weakness of Mexico's peso has been a bit of

a problem for the country's dry bean industry. Caballero says the value of the peso has declined approximately 25 percent in the past year and has experienced a 40 percent devaluation in the past five years, from 13.5 to nearly 19 pesos per dollar. "All of a sudden, all of the Mexican bean importers have to pay for that premium for a higher dollar price," says Caballero. "And then translate that increase to the consumer who sometimes choose other products."

Because of the rising price of beans, Caballero says some growers in Mexico held some of last year's crop in hopes of getting a higher price, but have had difficulty selling them for the price they want. "Those beans are coming into the market at lower prices, so, unfortunately, I think their strategy didn't work."

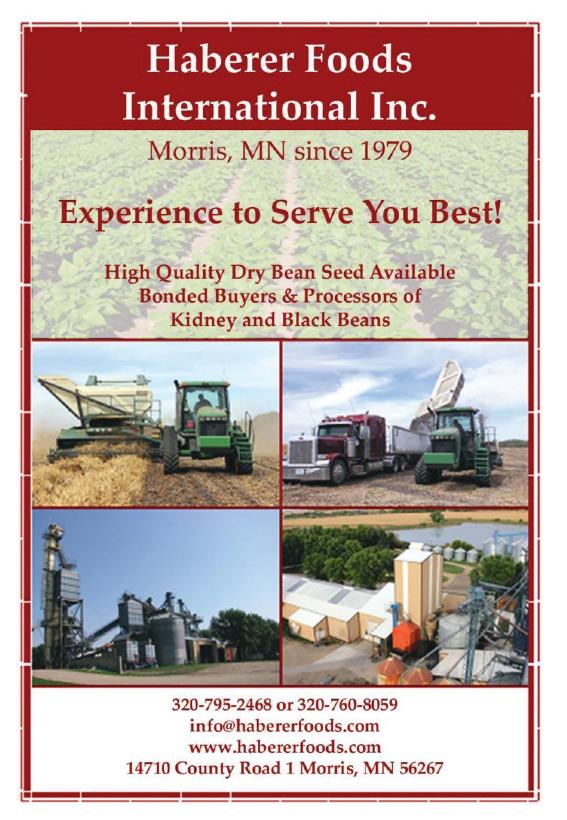
#### **DURANGO**

Because of the lack of money to buy bean seed to plant this 2016 Spring/ Summer cycle and the absence of a government subsidy program for small producers, the situation is becoming critical compared to recent years. Sergio Silva, leader of the People's Agricultural Organization OAP, said certified bean seed was being offered by different companies in the state at very high prices of 25 to 30 pesos per kilo (2.2 pounds).

Silva said that in the case

of Guadalupe Victoria and Cuencame districts, most producers do not belong to the social sector as they plant large land extensions and had enough money to buy seed. However, producers in Canatlan, Panuco de Coronado, Vicente Guerrero, Durango, Poanas and Nombre de Dios plant up to 10 hectares and did not have money to buy seed. "And although Gua-

dalupe Victoria and Cuencame districts are the ones that produce more in the state, the amount of small producers is higher than them," said Silva.



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## MEXICO COCHRAN MISSION COMING TO NORTH DAKOTA

USDA's Foreign Agricultural Service (FAS) in Mexico City is sponsoring a Cochran educational mission to North Dakota to support the International Year of the Pulse and pursue emerging interest in the use of bean-based ingredients for snack foods, pastas, etc. Cochran programs are funded by USDA/FAS in collaboration with agricultural cooperators, in this case the U.S. Dry Bean Council and the USA Dry Pea and Lentil Council, to craft program focus and visits. Eleven people from 10 companies have been chosen to participate in the program that will take place from October 9-15, 2016 and will include visits to ADM, AGT, and a visit to the plant breeding program at NDSU. Participants will also attend a course at the Northern Crops Institute in Fargo to learn about the procedures and technicalities that pulses require as these ingredients are added to food formulas.

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## NORTHARVEST Pulse of the Industry



**ALLEN TUCKER** St. Thomas, North Dakota

How long have you been farming? How did you get into farming? I've been farming since 1988, when I graduated from North Dakota State University. ABC, Ag Partnership is our bean farm. It's a partnership with my brother Bennet Tucker and my two brothersin-law, Brian Petersen and Connor Oihus. We grow edible beans, wheat, potatoes and sugarbeets. We have a very diverse operation. We are a century farm. My great grandfather, Robert, homesteaded in our county and farming went down the line. My family gets along really well and we delegate responsibilities on the farm. We all have our areas of expertise to complement each other.

What classes of beans do you grow and why? We grow pinto and navy beans: about half-and-half.

Do you have any hobbies? I like to snow-mobile in the winter. I like to camp in the summer. I like to watch ice hockey. I am fortunate enough to have the Winnepeg Jets in Winnepeg. A group of friends and I share the tickets and go up. We also have UND hockey tickets.

If you could win a vacation anywhere, where would you want to go? My family and I have a camper. We like to use it when we can. My wife and I went to Idaho for a sweetener symposium in August, and drove our camper out there. We like driving vacations. We're trying not to do the same thing twice.

What's the best part of your job? It's not just a career; it's a lifestyle I really appreciate. Families get to work together to feed the world. I get a lot of satisfaction from that. I like it when we are busy in the busy seasons.

## Pulse of the Industry



**DAVID AND PAUL MEULLER** Cummings, North Dakota

What's the history of the Mueller farm? Our dad, Earl, grew up west of Hillsboro and bought this farm in 1952. We've grown the farm in this area since then. We lost our dad in 1972 and our mother, Barbara, had the vision to keep the farm going. There were seven boys and one girl in our family and we ranged in age from 5 to 14. Mom got 60 acres of sugarbeets and thought that was the best way to keep her 8 kids busy. So she put us to work hoeing the beets, and that helped pay for our college. Mom was very strong about us all getting a secondary education. She was a real mentor. With the help of another person, we added some sugarbeet acres and actually started a family partnership so that everybody could be a part of it. And we've kept that going-that's one way that all the family members still get to be a part of this farm. Dave came back to farm after graduating from college in 1982, and Paul did the same three years later. Our mother died in a traffic accident in 2008.

#### Has the farm always raised edible beans? ${ m No.}$

We started raising edible beans when we started farming together in 1985. We've raised great northerns, pinks, navies, black turtles, and pintos, but our mainstay has always been pintos. This year it's all pintos; we're growing the slow darkening beans for Central Valley Bean Cooperative in Buxton to see how they work out.

#### Have you had a favorite piece of equipment?

Dave: "I really haven't. GPS is a great thing, but does it make us a lot more profitable? I'm not sure. It would be hard to go back to farming without it, kind of like the GMO thing-it'd be hard to go back." Paul: "My favorite piece of equipment was the John Deere 4650 we used to have. It brought us to the next level. It was a front wheel assist tractor. Also, an 8430 4-wheel drive tractor we used to have

also brought us to the next level of farming. They allowed us to be more efficient and not get stuck."

Is there a piece of equipment or technology you wouldn't want to farm without? Dave: "The auto steer." Paul: "We've been through the mill with electronic issues the last couple of years, and there are so many things in these tractors, so many electronics we could do without. I'll admit, auto steer brought us to that next level as well. If there is one electronic thing I'd like to keep, it's auto steer. A lot of those other things are really great, but I'm not sure it's doing that much for us."

What hobbies do you have? Dave: "We have a lake place we can get to once in a while, and I like to travel." Paul: "I like snowmobiling.

If you could win a vacation anywhere, where would you go? Dave: "Switzerland. That's where the Muellers came from and I'd like to go back and see where the family name came from." Paul: "I'm not a traveler, but the trips I enjoyed the most were taking the family to Orlando, Florida and going to Disneyworld.

**What's your favorite food?** Dave: Meat and potatoes. Paul: Hamburger and French fries.

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