USDBC NEWS:
USDBC Elects New Officers
The Council concluded it's annual Winter Meeting in DC on January 27, 2016 electing the following new officers to a two year term:
- President - Lynn Preator, Preator Bean Company, Burlington, Wyoming
- Vice President - Deon Maasjo, Kelley Bean Company, Oakes, North Dakota
- Treasurer - Mark Thompson, New Alliance Bean and Grain Company, Alliance, Nebraska

Congratulations to the new Officers. Additionally, the Board and Officers discussed several new exciting initiatives for 2016 to continue to build global demand for U.S. dry beans. In addition to the momentum this year from the International Year of Pulses, USDBC is looking at several new demand building activities around the world as existing and new export markets seek to promote plant based proteins and processed products such as bean flours and fried snacks. This will be coupled with strong domestic program to address new regulatory challenges concerning zero tolerance issues and to support research to engage in questionable trade practices concerning imports of US dry beans. Recently, this has resulted in numerous tactics to restrict imports, including refusal to issue phytosanitary certificates necessary for market entry. According to industry insiders, there are currently 3,000 MT of pinto beans detained at port, and another 3,000 MT of dry beans under contract or nearing delivery. At current prices, this could mean a loss of approximately US$3.5 million. USDBC is working closely with the office of USDA’s Foreign Agricultural Service (FAS) in Santo Domingo and with FAS trade enforcement staff in the U.S. seeking immediate resolution to this issue. We will keep you updated with any new developments.

Solutions for Sclerotinia?
Sclerotinia is a fungus that causes white mold in a number of different broadleaf crops including dry beans. It is estimated that the economic loss due to crop damage as a result of sclerotinia in dry beans is over $46 million. USDBC has been working closely with other affected crops as part of the National Sclerotinia Initiative (NSI), to find a solution to white mold as it is one of the major obstacles to increased production and yield. There is no doubt that the US bean industry will need to produce more to feed a growing world population in the long term and to satisfy growing demand for sources of plant based protein in the short term.

Along with industry partners, USDBC has participated in The National Strategic Plan for the Sclerotinia Initiative 2017–2021, providing the research community with a foundation for a comprehensive and integrated research approach toward this problem. According to the Initiative white paper, “the plan defines the actions that will be taken to solve these problems, describes what is promised or will be produced, assigns accountability for the work to be accomplished, and provides a mechanism for peer review and assessment of research progress.”

The full report and outline of research priorities is available from USDBC.

“Dal Shock” in India
The latest news from India suggests that the unprecedented high prices for pulses is not due solely to crop shortfall but to price gouging. Indian trade insiders and media report that a few Indian traders are buying up stocks of red lentils from Canada and using this to extract high prices and play the market, exacerbating existing fears caused by crop concerns. This has created chaos and panic across the pulse market resulting in wild price spikes. While this does not have a direct impact on dry beans, reverberations will be felt throughout the pulse market as the same buyers purchase all pulses.

The Government of India (GOI) is taking steps to determine responsible parties and bring an end to the so-called commodity “cartels.” This may have an impact on the ability to conduct business in the short term but USDBC’s on the ground Representative in India is confident things will be sorted out in short order. A delegation of U.S. dry bean dealers and growers will travel to India this month to attend the Pulse Conclave and meet with potential buyers. While we are aware of the situation and it’s potential impact in the short-term, we anticipate a successful meeting where U.S. industry representatives will have the opportunity to establish important new contacts, leading to future business opportunities.

Eye on Mexico Market
The market situation and potential demand outlook in Mexico remains fluid as harvest numbers continue to come in from the main dry bean growing regions. Some regions are reporting harvests well below anticipated forecasts and others seem to be holding steady. USDBC is deciphering the market intelligence daily so that state and bean class specific data can be available to our membership as the specific numbers are confirmed. We will continue to keep you informed and please feel free to contact our Mexico City office with any questions.
ARGENTINE EXPORT

Argentina’s newly elected President Mauricio Macri, has kept his promise to remove taxes and quotas on agricultural exports and devalue the peso. The impact of this policy change is an almost doubling of the value of wheat, corn, and soy, compared to the previous regime. Farmers who have been holding on to their crops have all started to sell. As a representative from leading commodity broker IntL FC-Stone noted in regards to the recent sale of Argentine wheat to Egypt, “Argentina just came in and said, we want to sell...they completely smoked Russia.”

While the policy changes aren’t likely to have a huge impact on planting decisions for this season as most of the crops are already in the ground, it will likely usher in a significant rise in wheat and corn areas from next season onwards. For dry beans, this could mean a smaller crop as farmers will look to plant more corn and wheat or any other crops incentivized by the government. Argentina’s new export policy also means that more commodities are likely to flood the market in a year already characterized by depressed prices. USDBC will continue to monitor the market conditions as they evolve and will keep the industry updated.

PROTEIN HIGHWAY

Not only is 2016 the International Year of Pulses, it is now the year of the Protein Highway. The Protein Highway is a new initiative started by the Canadian Consulate in Minneapolis and involving representatives from a variety of sectors from both Canada and the U.S. According a recent white paper from the Consulate General of Canada in Minneapolis, “The Protein Highway is an initiative to enhance cross-border collaboration among entrepreneurs, researchers and investors across the Canadian Prairies and Upper Midwest/Great Plains region and stimulate economic growth and prosperity in innovative agricultural technology solutions to meet the ever-growing global demand for plant-derived protein.” This is in response to ongoing population pressure, increasing demand on finite resources, and a documented increase in demand for “whole format protein crops, novel plant derived protein ingredients, meat replacements and specialty industrial ingredients.

“The goal is to make the Protein Highway region into a hub for innovation to improve the entire productive value chain for crops grown in the identified region (see map). This would include; enhanced protein crop production, development of new processing facilities and food ingredient manufacturing, and incentives for new entrepreneurial and investment activity. The area is considered strategically important for its proximity to large cities and its extensive network of research centers and universities as well as health and wellness resources. Kevin Kephart, Vice President for research and economic development at South Dakota State University noted, “If you look at this region... where else on the globe has equal capacity to produce plant protein... There’s just no other place.” This project is still in its initial stages, USDBC will be exploring opportunities for engagement that benefit our industry.

INDIA PULSE CONCLAVE

Three dry bean industry representatives and our on the ground representative, Shakun Dalal, attended the Pulse Conclave in Jaipur, India to explore opportunities in this dynamic and complex market. The Conclave drew a record 1,200 delegates who came to hear about India’s anticipated pulse crop shortfall and forecast for imports. This outlook was presented against a backdrop of ongoing controversy regarding pulse hoarding by a few Indian buyers and the subsequent imposition of stock limits by the Indian government.

India has now had two consecutive harvest cycles with below average production due to weather conditions. Government reports note that the last two years have presented a crop shortfall of over 2 million MT below the 2013-2014 levels. Conclave speakers forecast that there will be stock shortages as early as June and planting for the coming months has been delayed.

Imports are at a virtual standstill and not many orders are being placed but as the pipeline dries up, pulse prices will skyrocket again. Importers are extremely concerned about pulse stock limits in place and the general disruption to the pulse supply chain during a time when India needs to import. The general market disruption makes it difficult to predict potential dry bean purchases. Industry representatives are optimistic about the contacts established and the foothold that we were able to gain in this market in a year that presents several opportunities for sales.
**Mexico Suffers**

The completion of bean harvest in Mexico has revealed a number of conditions resulting in high prices for some Mexican beans and a spike in demand for U.S. pinto beans among others. While initial reports suggested minimal crop damage post hurricane, recently completed crop assessments indicate quality damage across the board in the key Mexican bean growing states of Zacatecas, Durango, and Chihuahua. At the same time, drought is impacting the bean crop in other states. The Mexican government has announced a premium of two thousand pesos per MT over the base price. Market prices for Mexican pintos are around 11,000 pesos MT.

Mexican market intelligence is estimating Mexican dry bean production at around 800 thousand MT, short of the 1.1 million MT projection. Additionally, last week, some regions in Sinaloa state registered record low temperatures and an early frost. Reports indicate major damage to bean harvests under way there, possibly even total crop loss of Azufrado and Mayacoba beans.

The market dynamic in Mexico has changed significantly from previous projections, returning Mexico to its place as an important export destination for our beans, especially pinto. We will continue to monitor the situation and remain committed to this key U.S. dry bean trade partner.

**BEAN MARKET SUMMARY**

**BEANS** Trading activity was slow on light demand. Pinto beans seem to be in good demand with the domestic and export (Dominican Republic and Mexico) markets. Oil prices in the lower end of the thirties and the strength of the U.S. dollar are effecting markets. The 2014 Bean Market News Summary is now available at the following website www.ams.usda.gov/mnreports/isaba.pdf

Dealer: PINTO BEANS were mostly steady. GREAT NORTHERN BEANS were steady. LIGHT RED KIDNEY BEANS were established. DARK RED KIDNEY BEANS were established. PINK BEANS were not established. SMALL RED BEANS were not established. BLACK BEANS were steady. PEA BEANS were steady. GARANZOS were steady.

**USDA Will Purchase Beans**

ARLINGTON, Va., Feb. 25, 2016 - The Department of Agriculture released its 2016 market projections today, setting the stage for a year that looks to be heading toward increased planting, but decreased incomes.

At the annual Agricultural Outlook Forum in Arlington, Virginia, the department’s chief economist, Rob Johansson, said USDA’s Economic Research Service is projecting a $1.6 billion drop in net farm income, about 3 percent below 2015 levels. That’s on the heels of a projected dip in prices, which will lower commodity values in both domestic and international markets.

Johansson said weak global economic growth and a strong U.S. dollar will make for a competitive trade marketplace in 2016. “That, coupled with record global crops for grains and oilseeds and moderate demand growth over the past few years, have contributed to stock building and price declines over the past year,” he said at the opening session. “Those trends are expected to continue into 2016, but level off as trend yields would be expected to produce 2016 crops slightly lower than this past year’s record production.”

Johansson said total U.S. agricultural exports are looking to be about $125 billion for fiscal year 2016, a drop of 10.5 percent from the previous year and a record $152.3 billion in 2014. Reduced sales to China will play a big role in that drop, but Johansson said that “much of the reduction” is due to lower grain and feed exports.

In many crops, prices are projected to take a tumble for the fourth straight year after reaching record highs in 2012. The lower
prices will trigger fewer acres as producers leave some land fallow that was brought into production after the price boom of a few years ago.

Here’s a commodity by commodity breakdown of Johansson’s project

• Corn acreage is expected up 2 million acres, a 2.3 percent increase over actual 2015 numbers. Price per bushel is estimated to be 15 cents lower at $3.45.

• Soybean planted area will be little changed, dropping just 200,000 acres, or 0.2 percent. Estimated prices are down 30 cents to $8.50 per bushel.

• Wheat takes a big hit in planted area, down 6.7 percent to 51 million acres. Prices are forecast to fall 80 cents to average $4.20 a bushel.

• After a drop of about 21 percent last year, cotton acres are projected to rebound 9.6 percent to 9.4 million acres. The pound price of upland cotton is projected at $0.85 per pound, down about $1.50.

• In all, the planted area for the eight major crops is projected to experience a drop of 2.5 million acres.

• On the livestock side, USDA is anticipating a record 97.4 billion pounds of total meat production, partially due to record broiler and pork production.

• The cattle inventory’s recovery is projected to continue, with the number of beef cows up 4 percent at the beginning of 2016 from a year earlier. Beef production is projected at 24.6 billion pounds, a 3.8 percent increase over 2015. Prices, however, aren’t on the rise, as the department is projecting a 7.3 percent drop. Broiler production is forecast at 41 billion pounds, a 2.5 percent increase over 2015. Prices are seen down 3.3 percent.

• Pork production is projected at 25 billion pounds, the highest ever and a 2.2 percent increase over the previous year’s record output. Prices are projected to drop 5.9 percent to $47.30 per hundredweight after dropping almost 34 percent in 2015.

• Milk production is also expected to break last year’s record, increasing 1.6 percent increase to 211.9 billion pounds. Prices are also down in the overall dairy sector, an 8.4 percent drop that is the biggest in the animal product category.

Perhaps a bit of relief to producers is a projected drop in land values and cash rents. Johansson said figures show that land values may have plateaued in the fourth quarter of 2015, potentially triggering less expensive land for rent and purchase.

This year’s outlook is the 92nd annual event put on by USDA.

Food Aid

• Home » Food Aid » Partners in Food Security and Nutrition
• Beans are one of nature’s nutrition powerhouses
• Beans are cost-competitive
• There are numerous varieties of U.S. beans to meet local preferences
• U.S. dry beans are all natural and non-GMO
• Beans have a long shelf life
• Beans are well suited for both emergency and development programs
• All beans provided meet USDA grading standards

In many cultures, dry beans are a food with a custom of usage dating back thousands of years. Beans are a staple food for a majority of the world’s population and represent a primary source of protein and other important nutrients in South and Central America, Asia, the Indian subcontinent and Africa. In fact, today, beans are part of many national recipes, such as “frijoles” in Brazil, “Bandera Dominicana” in the Dominican Republic and “Gallo Pinto” in Nicaragua and Costa Rica as well as “Samp and Beans” in Southern Africa.

But beans are not just food. In many countries, production and/or inventories of dry beans are considered to be matters of national security. Dry beans are so important that shortages or large price increases for dry beans are commonly reported in the front pages of local newspapers. Beyond being just food, dry beans are often part of the culture and fabric of a country.

Including beans in a PL 480 Title II or Food for Education ration is a guarantee of improved nutrition. Many highly respected nutritionists have referred to beans as a “superfood.” And for good reason. Beans are nutrient dense. They are a strong source of dietary fiber, which has been shown to help prevent cancer, heart disease and other common ailments. In addition, beans have been found to be rich in compounds called protease inhibitors. These compounds have been shown to make it harder for cancer cells to invade healthy tissue, and this may explain some of the cancer protection effects of many beans. Beans are rich in isoflavones.

Beans are also excellent sources of fiber, which has been shown to be valuable in lowering cholesterol and plaque in the bloodstream. The high fiber content of beans also helps to prevent blood sugar levels from rising too quickly after a meal, making beans a particularly good choice for those who suffer from diabetes, insulin resistance or hypoglycemia.

Beans offer an excellent source of protein, particularly when combined with another grain choice such as wheat, corn or rice. Beans are high in iron and are an especially important part of the diet where iron deficiency and anemia are common. They are one of the best sources of folate, B vitamins, and antioxidants, all which...
Beans are typically packaged in 25 and 50 kg poly bags that are easy to handle and stack compared to other commodities. They are suitable to crowded storage conditions since they can be stacked relatively high without bursting or causing damage to the bags or the beans.

Beans have a minimum shelf life of one year and will keep indefinitely if stored in a cool, dry place. If stored properly they can withstand relatively harsh conditions – even in tropical environments.

USDA and USAID now allow for substitutable ordering of beans. This means that tenders may include more than one class of beans, which maximizes budgets. Substitutable tendering also allows for cooperating sponsors to provide a greater variety of bean choices to recipients.

Whenever possible, we recommend that beans be requested in time to be purchased when prices are at their lowest. Historically, this has been during the period from the harvest season (mid-August to early October) through the end of the year. Garbanzo beans are harvested earlier, in June and July. As with other crops, pricing at any point in time is affected by a myriad of market forces. Please feel free to contact us for advice on the most suitable time period for ordering.

It goes without saying that it is imperative to know the dietary habits of local populations when developing food-aid rations. Not all varieties of beans are acceptable to all peoples, and the taste or cultural preferences governing acceptability are often regional as well as national. In this sense, beans are like wheat, rice, corn and other commodities which also have local preferences.

There are so many varieties of U.S. dry beans produced that national and local preferences can almost always be met through careful specification of an appropriate variety. Not only do beans come in many shapes, sizes, textures and colors but the different varieties often also taste very different. Having said that, some varieties share enough characteristics that they can often be substituted for one another, making acceptability of an unknown variety much more palatable than is the case with other commodities. Colored varieties of beans can often be substituted for each other easily. For example, light and dark red kidney beans, pinto and cranberry beans, and pink and small red beans. Likewise, some varieties of white beans can be substituted when there is not a strong cultural preference for a particular size white bean.

Below, we attempt to provide some guidance on bean preferences in particular markets. These lists are not all- inclusive. However, should you need information about which bean type is most suitable in a particular market please contact us and we would be happy to help.

Springtime Bean Considerations

With planting season just around the corner, many items are on the mind of Colorado farmers, who are preparing for the new growing season. And while we are mainly concerned with Dry Bean production here, our growers are busy balancing various decisions concerning a variety of crops.

The following excerpts from the “Dry Bean Pest Management and Production 3rd Edition” highlight some of the operations which Colorado Dry Bean growers consider when preparing to plant and nurture Dry Beans, Including: Crop Rotation; Seed Certification & Quality; Nutrient Management; Tillage Practices; Weed Management; Planting; and, Irrigation Management.

Crop Rotation

Mark A. Brick and Howard F. Schwartz

Crop rotation is a planned order of cropping sequence on the same field over seasons. A good crop rotation will increase profit over time by selecting a cropping sequence that has more additive than non-additive effects.

To accomplish this, crops used in
any rotation must: 1) be adapted to the local climate and soils, 2) be compatible with the producer’s management program, 3) have a viable market, and 4) utilize equipment available to the producer.

Dry bean producers practice crop rotation on most fields to alleviate disease problems associated with mono-cropping systems. However, they may not plan or use rotations that maximize benefits. There are numerous benefits to crop rotations including both direct and indirect benefits. Crop rotations can; 1) reduce disease, insect, and weed problems, 2) aid in maintenance of organic matter and fertility levels, 3) more efficiently utilize soil nutrients throughout the soil profile, 4) distribute labor and machinery requirements over the season, and 5) increase crop yield. Many factors influence the type and length of crop rotations, including the length of the growing season, water availability, soil problems such as compaction or salinity, availability of local markets, and federal farm programs.

Crop rotations can be very effective in suppressing a number of pest problems. Rotations are useful for pest management because they modify the pest complex and management practices which reduce the buildup of crop specific pests and enhance soil texture. Each crop and crop management system tends to develop its own characteristic pest complex. From the standpoint of pest management, the best crops for a given rotation are those that are botanically unrelated such as a monocot (e.g., corn or cereal) and a dicot (e.g., bean or sunflower). Crop rotations are most effective on pests that infest the root zone, are relatively immobile, and have a narrow host range. The combination of crop rotation and pesticides is often more effective for reducing pest populations below economic levels than pesticides alone. Additionally, pesticides may not be effective for controlling certain diseases such as white mold in dry bean, potato, canola, and sunflower, therefore, crop rotation is the only feasible method for controlling both the incidence of disease and the overwintering structure that provides primary inoculum.

Seed Certification & Quality

Rick Novak & Mike D. Moore

Seed certification programs ensure that quality seed supplies are available to crop producers. The primary emphasis of seed certification is the maintenance and identity of genetic purity in crop varieties. The certification programs are governed by minimum standards set by members of the Association of Official Seed Certifying Agencies (AOSCA), with the opportunity to adopt more stringent requirements on a state-by-state basis.

See Springtime on Page 8
SEED CERTIFICATION REVIEW:

A limited generation system consisting of Foundation, Registered and Certified classes is utilized to regulate the seed multiplication process. Foundation seed is usually produced by the originator of the variety and sold to seed producers to produce Registered seed. Registered seed is grown by seed producers to increase the supply of seed for production of Certified seed. Certified seed is to be used for commercial production and in most cases cannot be used to produce another generation of certified seed.

Land used for production of all classes of certified seed must meet specific requirements with respect to cropping history and isolation. The process of determining whether a seed crop merits certification involves precise record keeping, field inspection(s), proper seed conditioning, and laboratory tests to assess germination and purity, and proper labeling of the seed container.

Bean seed producers must maintain records that enable the certification agencies to follow the entire process of seed production, conditioning and disposition for each field. Record keeping requirements include: cropping history of each field, documentation of planting stock, field production records, and records that trace the storage, conditioning, testing, labeling, marketing, and shipping/disposition of all seed from each field.

Certified seed producers are required to clean seed handling equipment prior to planting, harvest, and conditioning of certified seed to maintain varietal purity. The removal of remnant seed of previous crops from equipment will prevent the introduction of seeds of different crops or varieties into the desired seed lot. Failure to thoroughly clean equipment can increase seed loss during conditioning and may reduce the value and marketability of the seed crop. Seed handling equipment includes planters, combines, trucks, and augers.

Trained representatives of state certification agencies inspect bean seed fields for genetic purity of the variety, and for the presence of objectionable weeds and seed borne pathogens. Two inspections are normally conducted, once during the flowering period and once at pre-harvest or windrow. Seed fields are rejected if they fail to meet strict tolerance levels stated in the certification standards. These specific standards vary slightly from state to state. A copy of Certification Standards can be obtained from the certification agency located in your state.

Application for certification must be made to the state seed certification agency in the state where the seed will be grown. Usually a local cooperative extension agent or educator can be of assistance in locating the certification agency. The agency will usually require such information as the name and address of the applicant, specific crop information, field history information, number of acres, and a proof of parent seed source, which is commonly a seed tag of the planting stock. Applications are generally due in late spring or early summer for that season’s crop.

Nutrient Management
Gary W. Hergert, Jessica G. Davis, Timothy M. Shaver, and Jay B. Norton

Sound nutrient management is a valuable component to a profitable bean crop. A balanced fertility program enhances the benefits of other practices, but cannot compensate for poor management. Wise nutrient use, coupled with sound management practices, will enhance crop yield, improve crop quality, promote early maturity and maximize profits. Conversely, excessive nutrient application can create other nutrient deficiencies by upsetting the overall nutrient balance or lead to development of foliar diseases due to excessive vegetative growth.

Fertilizer applications should be based on soil tests, crop requirements, crop rotations and experience. Beans usually respond to applied nutrients when soil tests indicate low to medium nutrient levels. Foliar feeding may effectively supplement a fertility program, but is not a substitute for a complete program of soil testing and soil fertilizer application. Foliar nutrient applications will often reduce deficiency symptoms without producing a yield response. Yield potential is often reduced before the appearance of visible deficiency symptoms.

Soil testing is an important tool that can be used to help make nutrient management decisions; however, the laboratory results will be no better than the sample submitted for testing. The following guidelines will help ensure that the soil sample accurately represents the nutrient levels:

- Soil samples to estimate soil pH, organic matter, phosphorus, potassium, and micronutrient contents should be taken from the tillage zone (typically six to eight inches deep). The recommended sampling depth for soil NO-N3 is 24 to 36 inches.
- Large fields and fields that have substantial soil variation should be partitioned into smaller areas for sampling.
- Collect subsamples in a random pattern from throughout each field or sampling area. A good rule of thumb is to take one subsample for every one to two acres of field size. For example, soil should be collected from 20 to 40 locations within a 40-acre field with typical soil variability.
- Combine all subsamples for a given field or sampling area into a single container, mix thoroughly and submit to a quality soil-testing laboratory.
- Once removed from the field, nutrient levels in moist samples can change with prolonged exposure to air and heat. To minimize changes, air-dry the soil within one day of sampling.
- Keep the sample cool until it can be dried. Never allow the sample to be exposed to direct sunlight or any other heat source for more than a few minutes.

For further suggestions on taking soil samples, refer to guidelines published by Cooperative Extension and instructions provided by soil testing laboratories.

Tillage Practices
Calvin H. Pearson (from 2nd Ed. by John A. Smith and Calvin H. Pearson)

SEEDBED PREPARATION:

Tillage operations used for seedbed preparation of the dry bean crop must be selected with the following purposes in mind:

- Soil texture and depth
- Manage soil water
- Manage surface residue from the previous crop
- Control weed problems
- Application and incorporation of any herbicides and fertilizer
- Reduce soil compaction
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Springtime from Page 8

- Provide favorable seed-to-soil contact
- Enhance seed depth control during planting operation

In clean-tillage systems, most fields receive multiple, intensive tillage operations prior to planting dry beans. Many of these fields are disked to level ridges or incorporate crop residues, moldboard plowed, and then two or more secondary tillage operations are used to prepare the seedbed for planting. These systems have high production costs, reduce soil moisture, eliminate surface residue for soil erosion and moisture control, and contribute to soil compaction and other soil problems.

Conservation tillage systems have many benefits, including lower production costs, preserving soil moisture, improved soil structure, and reducing soil erosion. To use conservation tillage, corn, wheat, or other residue-producing crops must precede dry beans in the rotation. Conservation tillage systems replace the moldboard plow with the tandem disk, chisel plow, disk-chisel combination implements, or zone tillage implements. These systems leave some crop residue on the soil surface at planting time to reduce wind and water erosion potential.

Weed Management
Scott J. Nissen and Andrew R. Kniss (from 2nd Ed. by R. Wilson et al.)

WEED COMPETITION:

Weed competition can have a major impact on dry bean seed yield and quality. Weeds that grow above the crop canopy will cause greater yield loss than weeds that remain below the canopy. For example, hairy nightshade, barnyardgrass, redroot pigweed, common cocklebur, and common sunflower at densities of one plant per 3 ft\(^2\) can reduce dry bean seed yields by 22, 24, 24, 50, and 66%, respectively. As weed density increases, crop yield generally decreases until weeds begin to compete with themselves.

Time of weed emergence also has a significant impact on weed competitiveness. Weeds emerging with the crop cause greater yield losses than weeds emerging after the crop. To minimize crop losses, dry beans need to be kept weed-free until the crop reaches the sixth trifoliate-leaf stage or about six weeks after planting. After this period, the dry bean canopy should be competitive enough to suppress the growth of newly emerging weeds. Poor stands, crop stress, and wide rows may preclude bean foliage from covering the row and late emerging weeds can seriously impact yield and harvest efficiency.

Weed emergence in the spring is triggered by optimum temperature, adequate moisture, and tillage operations that expose seeds to light. Not all the weed seeds in the soil seed bank emerge each year because some weed seeds have an inherent dormancy factor. Only about 3, 5, 9, and 26% of common lambsquarters, hairy nightshade, green foxtail and kochia seed, respectively, in the soil seed bank emerge each year. With certain weeds, as soil temperature increases and reaches a critical point it can induce secondary dormancy and germination stops.

During the growing season approximately 31% of the broadleaf weed population emerges with the bean crop. Another 44% will emerge during the next 23 days and the remaining 25% will emerge during the remainder of the growing season. Some grassy weeds like green foxtail may not have peak emergence until the middle of the growing season when as much as 71% of the population can emerge between 36 to 50 days after planting.

Planting
Calvin H. Pearson, Mark A. Brick, and John Smith

Operations and preparations for planting dry edible beans set the stage for a successful crop. Poor planting operations will likely result in an inadequate crop stand that will limit yield potential.

PLANTING PROCEDURES:

A suitable planting date is usually established by a combination of factors including soil temperature, probability of the last spring frost, and length of growing season to allow the crop to mature before the first fall frost. The ideal soil temperature for germination and emergence of dry beans is about 60 to 65°F. Soil temperatures below 55°F slow emergence, retard plant development, and increase susceptibility to soil crusting, herbicide damage, and root health problems. If possible, plant 1 to 2 inches deep after early morning soil temperatures reach 60°F or higher. This temperature is usually reached between May 20 and June 5 in the Central High Plains.

Emerging seedlings and young plants are very susceptible to frost damage. Plant after the probability of frost is very low for your growing area. If you purchased crop insurance, check to determine if there are any early or late planting date restrictions in your policy.

Match planting date and desired harvest date with the number of days to maturity for the variety you are planting and your growing area. The bean crop should generally be planted after May 20th and before June 10th in the Central High Plains to provide the crop with adequate time to mature before damaging frosts in the fall.

Optimum planting depth varies with soil moisture content, soil texture, bean market class, type of planter press-wheel, and field history. Planting depth in the Central High Plains typically ranges from 1.5 to 2.5 inches. Planting depths of less than 1.0 inch are not adequate because soil moisture near the soil surface may dry out to prohibit rapid germination and emergence. Planting depths greater than 3.0 inches usually limit the seed from pushing the hypocotyl through the soil to produce a vigorous seedling, particularly if soil crusting occurs.

The choice of row width for dry edible beans is usually based on a number of issues including maximum yield potential, foliar disease potential, irrigation method, field equipment, and harvest options. Most dry edible bean production in the Central High Plains is currently on 30-inch row spacing, with 22-inch rows as the second most common. Several research studies have shown that row width less than 30 inches provide an increase in yield potential. Alternatively, narrow row width may increase the pressure of some foliar diseases such as white mold. Narrow rows cause the plant canopy to close faster between the rows and have been shown to decrease mid and late season weed pressure compared to wider row spacing. Some growers have used double or paired row arrangement on 30-inch centers as a way...
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Irrigation Management
Allan A. Andales (revised from 2nd Ed. by C. Dean Yonts)

Dry bean, like most crops, can tolerate some degree of water stress during the growing season without a significant impact on final yield. A plant that experiences water stress during a hot afternoon but then recovers during the evening hours will likely suffer little in yield reduction. If however water stress begins to appear and remains for several days in a row before relief occurs, then yield is likely being impacted regardless of the time of year. It happens the name dry bean sometimes gives the false impression that the crop can tolerate considerable water stress much like some of the traditional dryland crops, winter wheat for example. Keep in mind, the name dry bean refers to the seed being produced, not the ability of the plant to withstand water stress. Dryland crops do well because those crops, unlike dry bean, develop a deep root system that can extract water from deep in the soil. In general dry bean grows well in areas that have low to medium rainfall, partly because they have low to medium water needs. If dry bean is grown in areas with high humidity, disease can be a problem. As we will discuss later, dry bean is a shallow rooted crop and very much dependent on water held in the upper layer of a soil profile.

In many areas of the dry bean growing region, water has become a limited natural resource that has been taken for granted over the past several years. We often considered that doing a better job of water management meant we could reduce our pumping costs. As we see, ground water resources have declined in many areas due to extensive use or surface waters diminished due to competition from urban needs or environmental demands. Add to this the inevitable drought cycles, and conservation of water now means saving water resources.
so irrigation of crops can continue into the future. Yet despite efforts to improve water management, we will likely still see the conversion to crops that use less water or the conversion of irrigated land back to dryland in some of the more critical water short areas.

For some, conversion to crops that use less water, like dry bean compared to corn, may be the answer. But whatever we choose to do, it means that we must irrigate with our available water supplies to produce a crop as efficiently as possible. Not only do we need to understand the basics of irrigation, but also the relationship between the soil and the plant. For example, we need to know how and where the plant extracts water from the soil and if water is limited we need to know when irrigation is needed the most.

Quantity issues play an important role in the Central High Plains growing region, but at the same time water management to improve or maintain water quality will be necessary. If we practice poor water management, we are likely to see a degradation of our water supplies. This occurs primarily through deep percolation and the leaching of fertilizer and chemicals into the ground water. For surface irrigation those same fertilizers or chemicals can also be removed from the field in the form of water runoff. The goal of water management should be to efficiently use available water resources while at the same time maintaining water quality for other uses both now and in the future.

Mark Brick knows a lot about architecture—in plants, that is, not buildings.

Brick, professor of plant breeding and genetics at Colorado State University, led a research team that developed and released a variety of pinto beans that's easier to harvest than traditional pinto beans.

The variety, known as Long's Peak and named after a Colorado mountain that Brick can see from his front yard, features what scientists call "upright architecture" rather than the "prostrate" architecture traditionally found in pintos. In the latter, plants spread out horizontally, keeping pods closer to the ground and making them harder to harvest. With upright architecture, pods are higher and easier for combines to reach.

Long’s Peak has recently received attention as part of efforts to promote the United Nations’ designation of 2016 as the International Year of Pulses. Dry beans are one type of pulses.

Brick stresses that Long’s Peak isn’t unique. A number of plant breeders in both the public and private sectors also have introduced pinto varieties with upright architecture, he says.

"I don’t want to mislead anybody into thinking this is one of a kind," he says.

He also stresses other plant breeders contributed to Long’s Peak development, pointing to scientists at Michigan State University, North Dakota State University, the University of Nebraska, the University of Idaho and the U.S. Department of Agriculture.

"It was team effort," he says. "It took a long time. Long’s Peak is a good example of teamwork. It shows what can happen when people share their germ plasm."

Once, most pinto beans featured prostrate architecture. But Brick and other plant breeders have been working for years to cross bean varieties featuring large seeds and prostrate architecture with varieties featuring small seeds and upright architecture.

Long’s Peak and other varieties developed by plant breeders offer upright
architecture and large seeds, "the best of both worlds," Brick says.

Yields are priority
There are many kinds of edible beans; pintos, which often are used in Mexican dishes such as refried beans, are the most popular. North Dakota often leads the nation in both pinto and total dry bean production, and Minnesota usually ranks near the top in both categories, too. But edible bean growers in the area frequently mention harvest difficulties as a major challenge.

Brick, again stressing that he doesn’t want publicity surrounding Long’s Peak to mislead anyone, says the variety isn’t particularly well suited to North Dakota’s climate.

Joe Mauch, a Hankinson, N.D., dry bean grower and president of the Northarvest Bean Growers Association, a cooperative of North Dakota and Minnesota farmers that bills itself as “North America’s largest supplier of dry beans,” says he’s not familiar with Long’s Peak and can’t comment specifically on it.

In general, though, dry bean growers are interested in any variety that make their crop easier to harvest, though “yields are the most important thing we consider,” Mauch says.

Long’s Peak offers high yield potential, in addition to being easier to harvest than varieties with prostrate architecture, Brick says.

In any case, Brick says he’s pleased the International Year of Pulses is generating more attention on dry beans and research into new varieties.

**Micros 2016**

**Target Those Nutrients**

*CropLife Media Group By: Matthew J. Grassi | February 2, 2016*

Daniel Kaiser, University of Minnesota – Twin Cities, Extension Soil Fertility Specialist, has headed up quite a few micronutrient yield response trials throughout the state prior to the programs unfortunate de funding back in 2014.

Over that time, Kaiser and his team have looked at nearly every micronutrient from A to zinc, across soil type and crop, concluding that the best approach for growers and their retail sales agronomists is to target areas where historically certain micronutrients have been low.

“Well, the main thing is going to be targeting soil-specific issues that are related to micronutrient deficiencies,” Kaiser says. “Looking at a lot of the information we have there’s not anything out there that says — even with our higher yield levels now — that micronutrients are becoming anymore deficient. So you can target specific nutrients and get the best impact, and with the low commodity prices I think that’s going to be the best way to go, trying to target those that are really going to make the most sense for the growers.”

**MAJOR PLAYERS WEIGH IN**

At Maumee, OH-based The Andersons, Rodney Gilliland, Marketing/Sales Manager, says the No. 22 ranked CropLife 100 retailer is indeed seeing good adoption of zinc products among growers. Gilliland stressed that meeting the nutrient needs of both the crop, as well as the producer, is an ongoing focus at The Andersons.

“EDTAs, Nulex, Citrates, and blends including manganese and copper are all profit generating for the grower, and we have added accelerants such as fulvic acid and humic acid to our zinc for building more bushels and return on investment.” Another ongoing focus, according to Gilliland, is a new formulation dubbed MicroCarb ZMB.

“We are excited with the replicated research trials on products including MicroCarb ZMB. This product may be used in-furrow or foliar applied,” explains Gilliland. “The combination of carbon sources and zinc, manganese and boron are demonstrating significant ROI. Foliar applied Phosfix accelerates the growing crop. Some of the Phosfix components include NPK, carbon sources, and micronutrients.

“We are also excited about a new web tool we developed called CropCoach, which helps growers plan an efficient nutrient program.”

Compass Minerals, the relatively-new owners of the reputable Wolf’Trax brand of micronutrient products, didn’t release anything new to the market last year, but the companies’ EvenCoat technology was a winner for retailers and growers alike, according to Paul Reising, Product Manager.

“For retailers, the EvenCoat Technology really makes adding micronutrients a very simple blending process, especially with the improvements we’ve made to the handling equipment,” says Reising, who came over to Compass with the Wolf’Trax acquisition.

Additionally, Reising had some general tips for retailers going into the 2016 spring sales season.

“First of all, retailers need to seriously look at the trends of low zinc and boron levels in soil and tissue tests,” he says. “These trends are happening in areas that we typically didn’t see micronutrient use in the past. For the relatively low cost micronutrient applications are, the yield incentive can be positive.

“Secondly,” he continues, “we know margins continue to be tight for NPK, and retailers like to use our specialty fertilizer products to add value to their granular fertilizer sales. By coating their NPK with Wolf’Trax micronutrients, a number of retailers are transforming dry fertilizer into custom, innovative nutrient programs.”

Helena Chemical Co., (Cohltierville, TN) a national distributor, has full line single and multi-micronutrient packages.

“We’ve had success with growers using our Ele-Max Super Zn and ManZinc products for fertilizer impregnation,” says Mike Powell, Nutritional and Bioscience Brand Manager for Helena. “We use our EDTA Axilo line for adding micronutrients to starter fertilizers or for making foliar applications when a deficiency is picked up with tissue analysis.

“Our fertility programs start with soil analysis to see if deficiencies are present,” he continues. “Then as the crop grows we use tissue testing and make recommendations using our Extractor program for the needed nutrient or micronutrient.”

He says growers have learned that the new transgenic varieties and hybrids perform better when micronutrients are part of the nutrient equation.

“Our focus at Helena is to help customers get the best return on their investment on a cost-per-bushel basis, using the principles of the 4R’s — right source, right rate, right time and right place. Micronutrients fit very well into that focus, and the
**Colorado Bean News** - Volume 29 Issue 1 - April 2016

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**COLORADO DRY BEAN ADMINISTRATIVE COMMITTEE**

**2015 BUDGET**

as of December 31, 2015

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**Revised CWT** 1,058,000

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**Berry Bean Bread**

Makes 1 loaf of bread or 24 muffins (12 servings)

2 cups all-purpose flour
1 1/2 cups whole-grain flour (can use low-sodium salt substitute)
1 tablespoon baking powder
1 teaspoon baking soda
1 cup light brown sugar
2 1/2 cups milk
2 eggs
2 1/2 cups orange juice
1/2 cup soft margarine
1/4 teaspoon salt
1/2 teaspoon grated orange peel
1/2 cup fresh or frozen blueberries
1/4 cup fresh or frozen blackberries, chopped
2 tablespoons chopped nuts

1. Preheat oven to 350 degrees Fahrenheit.
2. In a large bowl, combine flour, sugar, baking powder, salt, and baking soda.
3. Purée dry beans with orange juice in a food processor until smooth.
4. Add beans, milk, eggs, and sugar, to flour mixtures. Stir just until flour mixture is moistened.
5. Add orange peel, blueberries, and walnuts to flour and bean mixture, stir just until combined.
6. Pour into greased loaf pan or divide between 24 muffin cups (greased or lined with paper liners). Bake for 20-25 minutes (bake muffins for 15-18 minutes) or until an inserted toothpick comes out clean.
7. Cool for 10 minutes. Remove from loaf pan or muffin cups. Store in airtight container.

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The COLORADO BEAN NEWS is published bimannually by the Colorado Bean Network, a non-profit organization which supports the dry bean industry and Colorado Dry Bean Administrative Committee in Colorado. We are pleased to offer advertisement access to our subscribers.

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- Colorado Bean News

**Editor/Layout:**
- Mark S. McMillan

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- Spring Issue 2017 - Dec. 1, 2016

**Contact:**
- Mark McMillan (970-481-5437)
- Mark.mcmillan@ColoState.EDU

**CBN Archives & Web Site:**
- www.csuag.com/cbn

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results in our customers’ fields confirm the results that we see in our research data.”

**MICROS GOIN’ MACRO**

Monty’s Plant Food, a privately-owned, Louisville, KY-based plant nutrition product manufacturer, has been moving its Humic-based technologies into row crop production for years now.

The company, which VP of Agronomy Joe Dedman describes as “focused entirely on soil health,” has had tremendous success with its product Microhance (chelated N, B, S, Fe, Manganese, Zinc) over the past four years.

“The beauty of the products we design is that we know farmers can’t afford to do a specific pass in the field just to put on micronutrients,” responds Dedman when asked why Microhance includes things like nitrogen and other macronutrients. “And all of our micronutrient products mix well and are tank compatible with insecticides, fungicides, herbicides, and fertilizers.”

Dedman also points to the fact that all of Monty’s micronutrient blends are 100% EDTA Chelated formulations, which he says is the most-efficient form for getting micronutrients into the plant.

“That’s not in the raw state but it’s optimized so that the plant can recognize it and take it in and absorb as it needs the nutrients,” explains Dedman. “When a nutrient goes on that is not chelated either the environment (via precipitation) or the plant itself has to break down that nutrient before it can be absorbed.”

Going forward, Monty’s is looking at couple new micronutrient products for the market in the next year or so.

“The big one we’re working on right now is a coating that goes on dry fertilizer and applied in-furrow or in a band.”

Meanwhile, West Central Distribution (Willmar, MN) recently announced its exclusive agreement with ATP Nutrition Limited to distribute the company’s proprietary micronutrient products statewide.

“ATP Nutrition’s products incorporate essential nutrients with proprietary biological activators to optimize plant health and maximize the genetic potential of the plant,” says Paul Gerdes, Proprietary Products Manager, West Central Distribution (WCD). “The technology and science behind these products are excellent additions to our plant nutrition product lineup and will give our retail customers more options to provide their farm customers.”

One West Central product that made headway in the U.S. retail market this past year was LEVESOL.

“Our customers have had such phenomenal success with Levesol, that we recently introduced Levesol DFC, a new dry fertilizer compatible format that will be available for this upcoming planting season,” says Gerdes. “Levesol DFC is the only chelating agent that can be impregnated on dry fertilizer and applied in-furrow or in a band.”

WinField witnessed two of its micronutrient solutions make it onto over 2 million acres in 2015, according to Adam Magnum, Marketing Manager in WinField’s Plant Nutrition group.

“Our agronomists have identified zinc deficiencies as a key yield limiter for a long time. MAX-IN ULTRA ZMB and our new MAX-IN ZINC continue to grow as growers become more aware of the agronomic importance of zinc.”

MAX-IN ZINC is ready for its first full season of use in 2016.

“It’s a great product when the grower is looking at addressing a specific and acute zinc deficiency,” Magnum says. “This new formulation is also more compatible with other micronutrients and common herbicides.”

And Magnum, despite the bearish commodity situation, still feels micronutrients are a worthwhile investment.

“Micronutrients still have a lot of life in them, despite weakening commodity prices. After growers have addressed macronutrient deficiencies and other top yield limiting factors, addressing key micronutrient deficiencies can be the next step to unlocking the seed’s full yield potential.”

[Editors note: This article was written for mid-west corn growers.]