Steele County

Ag Alert

Issue 3 – June 5th, 2014

Alicia Harstad, Steele County Extension Agent

Office: 701-524-2253 Cell: 701-331-1778 e-mail: alicia.harstad@ndsu.edu

Dry Bean Seeding Rates

By: Hans Kandel, NDSU Extension Broadleaf Crop Agronomist

Dry Bean (Phaseolus vulgaris) is a healthy human food, high in protein, phosphorus, iron, vitamin B1 and fiber, with no cholesterol. Pinto and Navy beans are the most commonly grown bean classes in our growing region with 64% and 16%, of the 2013 harvested bean acres, respectively. In addition, blacks, red kidney, light red kidney, cranberry, pinks, great northern and small red bean classes are also grown on limited acres.

Planting rates vary from 35 to 70 pounds per acres, depending on row spacing, bean plant type and percent pure live seed.

Pinto bean ranges from 1,200 to 1,500 seeds per pound. Planting rates suggested for pintos are 50 to 65 pounds per acre of pure live seed. Populations of 70,000 plants per acre for pinto beans have been found to be adequate. In some instances, reduced yields were observed when plant populations were below these recommendations.

Navy bean ranges from 2,200 to 2,800 seeds per pound. Planting rates suggested for navy beans are 35 to 45 pounds per acres of pure live seed. Studies conducted at various plant populations do not indicate any significant advantage to having populations greater than 90,000 plants per acre for navy beans. Slightly higher rates are advised under irrigation.

Dry bean seeds per pound and established plants per acre		
Type	Average seeds per lb	Plants per acre
Black	2,300-2,800	90,000
Great Northern	1,200-1,600	70,000
Kidney	800-1,000	70,000
Navy	2,200-2,800	90,000
Pink	1,600-2,000	90,000
Pinto	1,200-1,500	70,000
Small Red	1,400-2,000	95,000

Rates should be adjusted for low germination and cool, wet planting conditions. To obtain desired plant populations, overseed the number of live seeds (seeds that germinated based on the germination test) by an additional 10 to 15 percent to compensate for losses during emergence. Example for pinto bean: if germination is 95% and anticipated difference between live seeds and established plant density is 15%, target 70,000 established plants per acre (divide by 95 {germination %} multiply by 100) (divide by 85 {15% stand loss} multiply by 100) = 70,000 * 1.053 * 1.176 = seeding rate of 86,683 seeds per acre. With a seed lot with 1,250 seeds per pound the seeding rate should be 86,697/1250 = 69.3 lb per acre.

The normal planting depth for dry bean is about 1 ½ -2 ½ inches. Seed should not be planted deeper unless the topsoil is dry. Plant seeds in moist soil if possible. Bean producers should test their planter on a hard surface and in the field at normal planting speeds to ensure proper depth and seeding rate.

Stampede pinto bean at Carrington ND with evenly distributed plants within the 30 inch row spacing.

Early Growth Staging of Small Grains
By: Joel Ransom, NDSU Extension Cereal Crops Agronomist

Most of the small grains have now been planted and because of the warmer weather of the past ten days, most have emerged. It is nice to see some green in the countryside! Winter wheat fields that survived the winter are beginning to fill in nicely and are in the jointing stage or beyond. Unfortunately there are many reports of poor stands of winter wheat this spring that needed to be destroyed and replanted. The optimum and/or the legal timing of a number of management practices (i.e. nitrogen, herbicide and fungicide applications) is frequently determined by the growth stage of the crop. Therefore, correctly "growth staging" a crop is important in the crop management process. Though there are a number of different scales (i.e. Feekes, Haun and Zadok) that have been developed to classify the growth stages of small grains, typically early management recommendations are based on leaf numbers or other visible characteristics of the plants (i.e. jointing is when the first node can be detected about the surface of the soil). The following is a brief description of how to growth a small grain crop that may be useful as we approach key stages in the developing small grain crops.

When growth staging your crop you should begin by obtaining a representative sample of plants from the field or part of the field of interest. To give you a good feel for an "average" plant, use ten plants selected at random away from the edges of the field. Remove any soil attached to the plant so that you are able to observe the roots and crown. Leaf stage is the most common physical feature used to describe early development of small grain crops. Leaf stage is defined by the number of leaves that have visible collars on the main stem. Care must be taken to ensure that the earliest leaves are included when counting. The first leaf is small and is frequently lost from the plant during normal growth. It has a characteristically blunt tip. Look for the sheath remnants at the crown of the plant if you suspect that the first leaf (or second for that matter) is missing. The fact that tillers arise from leaf nodes can also help ensure that you count all of the leaves, as each tiller will be associated with a leaf on the main stem. Sometimes a tiller can arise from the coleoptile which is the exception to previous statement and this tiller will develop below the crown of the plant. Count only the leaves on the main stem, which is the tallest and leafiest of the stems, and not on the tillers. Include only those leaves that have a collar. When staging plants include all leaves, even those that have been damaged by hail or frost. The total number of leaves that a plant will developed is more or less fixed for a given variety; leaves that are removed from the plant will not be replaced by additional new leaves.

The North Dakota Agricultural Weather Network (NDAWN) can also be used to give you a rough estimate of the growth stage of your crop. Go to the application section of the NDAWN home page http://ndawn.ndsu.nodak.edu/ and select wheat growing degree days/growth stage, then enter your planting date and select the NDAWN station nearest your farm. Data on the number of wheat degree days and the approximate growth stage of your crop will be provided as output. This tool can be particularly

useful if leaves have been lost to frost or hail damage. New leaves require 143 wheat growing degree days to appear. During the recent warm days we were accumulating between 30 and 40 growing degree days per day, so a new leaf could be expected every four or five days. Unfortunately, rapid vegetative growth usually has a negative impact on yield potential development. The size of the spike, which begins development at about the four leaf stage and ends development when jointing is observed, is largely determined by the temperature during that period. Therefore, cooler weather in the coming few weeks would certainly be beneficial for spike development. If you are considering an application of nitrogen, the greatest impact on yield is achieved when this application occurs before jointing.

Spring Dicamba Application and Crop Planting Interval
By: Rich Zollinger, NDSU Extension Weed Scientist

Dicamba labels allow use before, during, or after planting of grass crops including corn and wheat. Increasing prevalence of glyphosate-resistant kochia may cause growers to consider using sequential applications and residual soil activity of dicamba in their grass crop weed control strategies. Kochia emerges early in the spring and if glyphosate and 2,4-D resistant biotypes are present there are few effective early-preplant burndown options available prior to planting broadleaf crops. Several people have inquired about the safety of soybean to dicamba residues in the soil from early preplant applications. The label gives the following information:

"Planting/replanting restrictions for Clarity applications of 24 fluid ounces per acre or less: No rotational cropping restrictions apply at 120 days or more following application. Additionally, for annual crop uses in this label including corn, cotton, sorghum, and soybean, follow the PREPLANT USE DIRECTIONS of the Weed Guide in section VI. Crop-Specific Information"

<u>Preplant Applications:</u>

Apply 4 - 16 fluid ounces of Clarity per acre to control emerged broadleaf weeds prior to planting soybeans. DO NOT exceed 16 fluid ounces of Clarity per acre in a spring application prior to planting soybeans. Following application of Clarity and a minimum accumulation of 1" rainfall or overhead irrigation, a waiting interval of 14 days is required for 8 fluid ounces per acre or less, and 28 days for 16 fluid ounces per acre. These intervals must be observed prior to planting soybeans or crop injury may occur. DO NOT make Clarity preplant applications to soybeans in geographic areas with average annual rainfall less than 25 inches."

The breakdown rate of dicamba would be slower in soils of the northern plains where soil temperature is colder and annual precipitation is low. This is a main reason why dicamba has not been used nor recommended in North Dakota prior to planting soybean or other broadleaf crops. Studies will be conducted in 2014 and 2015 to observe the effect of different rates of dicamba on broadleaf crops planted immediately after application and also one year after application.

With the registration of RU Xtend soybean in 2015 there will be concerns regarding broadleaf crop planting intervals after application of higher rates of dicamba than have historically been used in North Dakota. We will continually update about the results of field studies.

NDSU | EXTENSION SERVICE
STEELE COUNTY

AG ALERT
NDSU Extension Service Steele County
P.O. Box 316
Finley, ND 58230
(701) 524-2253-Office
(701) 331-1778-Cell
"NDSU is an Equal Opportunity Institution"