



10 Webster Street, Suite 210  
Town Square, Box 204  
Kentville, NS Canada  
B4N 1H7

199 Innovation Drive  
AgriTECH Park  
Truro, NS  
Canada  
B2N 6Z4

Prepared by:  
Jack van Roestel  
Field Crops  
(902) 678-7722  
j.vanroestel@agrapoint.ca

Bill Thomas  
Field Crops  
(902) 896-0277  
b.thomas@agrapoint.ca

## SPECIAL CEREAL ISSUE

### New Fact Sheets

Visit our website at  
[www.extensioncentral.com](http://www.extensioncentral.com) to check  
out our new on-line publications.

Click on Fact Sheets > Field Crops.

Recently added fact sheets are:

- Power of First Cut Forages
- Soil Fertility Considerations
- Topsoil — Our Finest Resource
- No Till Forage Seeding



April 2008 Vol 7 Issue 2

# CropLinks

information on forages, corn and cereals

## Grain Management Checklist

Here are some important considerations that could enhance your grain crops. This CropLinks issue has been developed from presentations at recent cereal meetings by Dr. Claude Caldwell (NSAC), Doug MacDonald (NS Crop Development Institute), Bill Thomas and myself (AgraPoint).

1. What Yields Do You Need? For those farmers with recent grain growing experience.... what yields do you need to profit over 2008 input costs? Based on my recent Cost of Production (COP) estimates, those of you growing "cash crop" grain need farm averages of close to 3.8 t/ha (1.5 tonne/acre) for spring wheat, 3.8 – 4.4 t/ha for 6-row barley and about 5 t/ha (2 tonne/acre) for winter wheat. Straw yields of 2.5, 3.2, and 4.1 t/ha for barley, spring wheat and winter wheat, respectively are also a big part of the revenue side. Yield targets may not need to be quite as high for those feeding grain on farm. Be realistic about yield potential of specific fields and your COP's.

2. Field Selection. Big grain crops require reasonably well drained fields that have good potential to be seeded between April 25<sup>th</sup> – May 20<sup>th</sup>. Soil pH should be 5.9 – 6.5; if less than this the N-P-K fertilizer efficiency and nutrient availability drops off quickly. Field slope and stoniness also warrant consideration.

3. Variety Selection. Book seed early and make every effort to get seed from the top yielders on the "Cereal Guide". There are now five varieties of 6-row barley in our Maritime Test that are yielding 4.6 – 5.1 t/ha (which is 10-15% more than Chapais). We also have five spring wheats with 3.9 – 4.2 t/ha yields and a couple of winter wheats with 4.9 – 5.1 t/ha test yields. Use the best yielders, and if you don't have a 2008 Cereal Guide to Variety Selection call us or check our website at [www.extensioncentral.com](http://www.extensioncentral.com).

4. Seedbed Prep. and Seeding Depth. The primary tillage that you start off with isn't as important as how the seedbed is finished off. Whether you finish with a roller harrow or land leveler or S-tine with heavy baskets or one pass coultter cart-no till drill, the critical point is that you have a fairly fine, firm & uniform seedbed that will allow consistent seed placement at 1-inch depth (2.5 cm). This uniform 1" seed depth should provide complete crop emergence within a 2 – 3 day period, with maximum seedling vigour to initiate full tillering and a supportive root system.

5. Seeding Date and Rate. For spring grains the earlier planting the better (germination starts at soil temperatures around 5°C). If your soil is ready to be worked and seeded in late April – early May, then go for it. Date of seeding research by NSAC has proven sizeable yield loss when spring wheat is seeded after mid-May. With winter wheat in the Annapolis Valley our best crops are usually seeded from Sept. 15 – 25<sup>th</sup> (seed on the front end of this timeframe if you have heavier textured soils, no till seedings, or areas outside of the Valley).

*continued on page 2*

Seeding rates need to be calculated on actual seed size (1000 kernel weight) and the desired densities given below. Here are some general seed rate recommendations for early seeding dates;

Spring Wheat: 400 seeds/metre<sup>2</sup> or 20 seeds/ft.

Winter Wheat: 300 seeds/metre<sup>2</sup> or 15 seeds/ft.

6-Row Barley: 350 seeds/metre<sup>2</sup> or 17 seeds/ft.

Please Note: The seeds/ft. is per foot of row in 6" spacing. Calibrate your seed drill before you go to the field. The 1000 kernel weight (TKW) is for your seed lot; do not use the average TKW shown in the publication! The seeding rate is also based on **viable seeds**, so make sure you adjust for germination rate. For example, on 6-Row Barley; 350 seeds/m<sup>2</sup> x 40 g/1000 seeds (TKW) ÷ 0.90 (90% viable) ÷ 100 = 156 kg/ha or 140 lbs/ac of seed required.

6. Applied Fertility. For phosphorous (P<sub>2</sub>O<sub>5</sub>) or potassium (K<sub>2</sub>O) a good grain and straw harvest will use about 30 – 40 kg/ha P<sub>2</sub>O<sub>5</sub> and 60 – 90 kg/ha K<sub>2</sub>O. If soil test phosphorous (P<sub>2</sub>O<sub>5</sub>) is under 300 kg/ha, or potassium (K<sub>2</sub>O) is under 400 kg/ha, then you need a mixed fertilizer or manure. For higher P&K soils, you are looking at just nitrogen. Total nitrogen is generally about 50 – 60 kg N/ha for 6-row barley, 60 – 75 N for spring wheat and 90 – 100 N for winter feed wheat. The nitrogen for spring wheat could be split for early seedings on sandy loam soils. In winter feed wheat, nitrogen should be split with 20N at seeding, 25 N in early April and 50 – 60 N applied four weeks later (last N before Growth Stage 31).

7. Weed Control. Get weeds controlled by the 3 – 4<sup>th</sup> leaf stage or just prior to tillering in spring cereals. Easy to control weeds such as lambsquarters, wild radish, pigweed, ragweed and hemp nettle can be taken out with MCPA or Buctril M, harder to control weeds such as some chickweeds, mayweed, cleavers, etc. will require Target, Refine Extra or Infinity (read product labels before using). Weed density levels requiring treatment depends on weed species; however for aggressive weeds a 5 – 20 weeds/m<sup>2</sup> density merits action.

8. Disease Control. This is the hardest aspect of cereal management to discuss in print. The basic concept is minimizing the disease damage particularly on the flag leaf (upper leaf) and head for as long as possible so these "solar collectors" can produce large kernels. With fairly low grain prices prior to 2007, few growers were using fungicides to go after disease in wheat and not at all in barley. The research trial work by NSAC/CDI had been showing very inconsistent payback on wheat disease control during 2004 – 2006, however in 2007 there was huge payback from the new Stratego and Proline fungicides when tested on barley, spring and winter wheats. In 2007 however, there was only one test site, but this will be repeated in 2008, along with adding a Tilt treatment.

With higher grain prices, I think there is more incentive to scout and possibly utilize a disease control program, particularly in spring & winter wheat. Growers on sandier soils, or in tighter grain/corn rotations will likely have more septoria and fusarium disease problems (call me to assist in these in-field disease control decisions).

9. Harvest Timing and Marketing Opportunities. Grain maturity depends on growing conditions and seeding date. Relatively early plantings, often have winter wheat ready for combining in early August, barley in mid August and spring wheat in early-mid September. Once barley has matured it's impor-

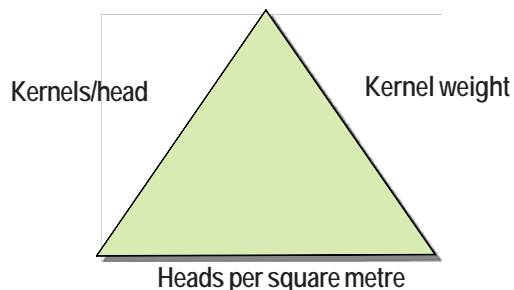
tant to get it harvested promptly because its' brittle straw can breakdown and grain heads drop off. Wheat harvest timing is not as urgent unless it's lodged or well into September when spring wheat can sprout in the head, discolour or vomitoxin problems can escalate.

In times of high grain prices it often pays to store grain and sell when the price is more favourable during the winter months, even if you are paying for storage at one of the public access facilities such as West Nova, Big East, P. Peill or Biggs Farms in western NS.

Regarding milling wheat, I had a recent conversation with John Snow at Dover Mills in Halifax. They are interested in Maritime produced hard red milling wheat which is 11.5 – 12.5% protein, has good falling number and other required baking characteristics. Dover Mills can also handle small amounts of soft red, 9-10% protein wheat for pastry flour production. John said they will need to analyze a sample from any local wheat first before pricing and purchasing. He prefers to deal with a marketing agent from one of the public access grain facilities, particularly on lots of less than 50 tonnes. Milling wheat requires more attention on disease control where fusarium can reduce baking quality, plus it will need an additional 20 kg/ha of N applied 8 – 10 days before heading to try to get protein over 11.5% (preferably 12.5% plus for full price). Good milling quality wheat is currently priced at well over \$100/tonne over feed wheat.

10. Understanding Cereal Growth. In our recent meetings Dr. Caldwell said that **Yield = Heads/m<sup>2</sup> x Kernels/head x Kernel weight**. By understanding this "yield triangle" and cereal crop development we can realize how important our management timing is on these yield factors. For example, **heads/m<sup>2</sup>** are determined at **both seeding and the on-set of tillering** (Growth Stage 21). This is why we need to have the field selection, seeding date, seed rate, seed depth, starter fertility done right, and have weeds controlled before tillering (G.S.21). Having the head density mentioned in item#5 will have a big impact on yield.

#### YIELD TRIANGLE for CEREALS



The **kernels/head** are set when the stem becomes more erect and the **plant starts to elongate quickly at about 5-6" in height** (G.S.31). At this growth stage growers need to have supplied the necessary N fertility, plus the crop requires good growing conditions in terms of heat and moisture.

**Kernel size is determined after heading, and during flowering or starch development** (G.S. 60 – 90) so it is important to have excellent growing conditions and you need to determine if a fungicide for disease control is required at G.S. 45 – 65.

Wishing you bumper grain yields in 2008 !!!  
Jack van Roestel, AgraPoint (678-7722)