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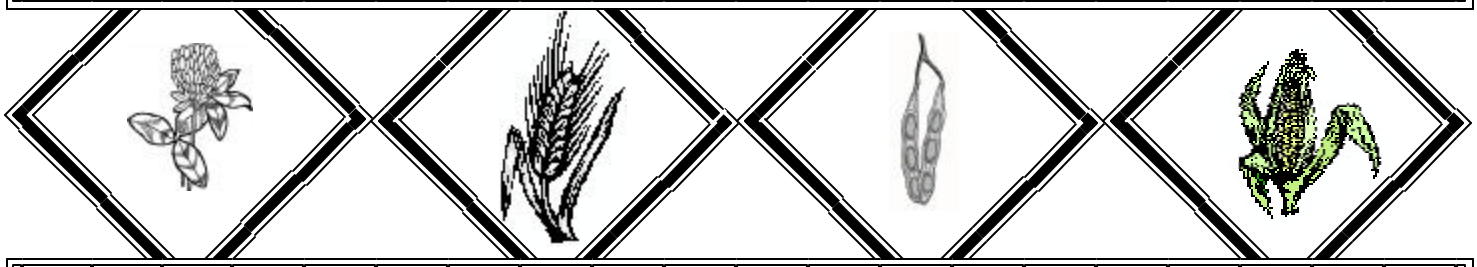
CROP TALK



OMAF Field Crop Specialists—Your Crop Info Source

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Late Summer and Fall Pasture

by Jack Kyle, Grazier Specialist, OMAF Lindsay

Now is the time! Plan now for late summer and fall pasture, and take action to make it happen. Planning and action now will pay big dividends later in the season.

The options: warm season annual grasses, cereals, and brassicas. Each of these has their advantages and weaknesses, and will fit into different situations.

Warm season annual grasses include pearl millet, foxtail millet, sorghum-sudan grass and corn. These species grow well in warm conditions, and need warm soils for germination. The millets can be grazed or harvested as hay/ haylage. The recommended seeding rate for pearl millet is 8 - 18 lbs/acre. Seed into a fine firm seedbed. Apply 70% of your corn fertility rate. Split the nitrogen half at planting, and half after first cut/grazing. The millets are ready for grazing 6-7 weeks after planting, and several weeks later for hay.

Sorghum-sudan grass is another alternative for late summer forage. Seed sorghum-sudan grass at 14 to 18 lbs/acre. Fertility requirements are similar to corn. Seed into a fine seedbed in 7" or 14" rows.

Do not graze or harvest until 24" tall, due to risk of nitrate poisoning. Where sorghum will be grazed, use strip grazing to reduce wastage and allow for regrowth. Sorghum-sudan grass works very well in a green chop situation.

Late seeded spring cereals make good late season forage. Oats or barley work well. Seed in late July or early August for forage in about 6-8 weeks time. Cereals are easy to establish and can be utilized following cereal grain harvest. A seeding rate of 100 lbs. per acre broadcast in early August and cultivated in provides mid September forage at a low cost. Addition of a small amount of nitrogen (30 lbs/ac) will help stimulate growth.

Forage brassicas include forage turnips, forage rape and kale. These crops provide good pasture for the September to early December period. They need to be seeded into a fine seedbed in early to mid summer, and produce most of their growth once the heat of summer starts to subside. Seeding rate varies by species from a low of 2 lbs/ acre for rape and turnips to 4 lbs./acre for kale. Be absolutely sure to provide mineral to livestock grazing brassicas, to prevent nutritional problems.

If the need for extra forage in the early fall exists, then plan in June. Use the appropriate seeding dates during June to early August to provide late summer and fall pasture. For more information on the above options, refer to these factsheets:

Forage Pearl Millet available at:
http://www.gov.on.ca/OMAFRA/english/livestock/dairy/facts/98-045.htm

Forage Sorghum-Sudan Grass available at:
http://www.gov.on.ca/OMAFRA/english/crops/facts/98-043.htm

Cereals and Cereal-Pea Mixtures available at:
http://www.gov.on.ca/OMAFRA/english/crops/facts/98-041.htm

Low-Tech Precision Agriculture

by Keith Reid, Soil Fertility Specialist

The best tool for precision ag is not the latest GPS samples or satellite image. Observations from the combine seat during harvest tell a far more accurate story. Pay attention! The very best precision ag tool is you!

Cereal crops show the impact of soil conditions sooner than they would show up in corn or soybeans. Watching the patterns of growth in your cereals can give an early warning of problems in the field, and direct you back to certain areas for detective work to determine what is going on.

Pockets of acid soils (low pH) are common in some parts of Ontario, but don't show up in a regular soil test. Oats and wheat, and barley to a lesser extent, are sensitive to acid soil conditions. Areas of poor growth should be targeted for soil testing after harvest to confirm whether low soil pH is the problem. In no-till fields, sample only 2" deep, but use this for soil pH only and not for checking nutrient levels. Conventional fields should sample the normal 6" depth. If parts of the field do need lime, the areas of poor growth can provide a natural application map.

Manganese deficiency is relatively common in cereals, showing up where there is a combination of high pH and either sandy, low organic matter, or muck soils. In severe cases, the crop will die completely in these areas, while less severe deficiency appears as stunting in the crop. Manganese is unlikely to be a problem in corn, but watch those areas of reduced cereal growth for manganese deficiency symptoms when that field is planted to soybeans, edible beans, or other cereals.

Cereals are very responsive to nitrogen. A nitrogen shortage causes stunting, yellowing, poor grain yield, and premature ripening. Too much N is even more striking, with lodging the most obvious sign. If your cereal crop is falling down with normal applications of nitrogen fertilizer, it is a good bet that other crops in the rotation are receiving too much N.

Wheat and barley don't like wet feet, so any areas of poor drainage will show up with reduced growth. Similarly, soil compaction will adversely affect crop growth, often following the patterns of tire tracks. Investigation with a shovel or tile probe can help to identify if compaction is the reason for poor crop growth.

So keep your eyes open at harvest time. It's the low-tech approach to precision ag, and just might lead to better crops in the future!

Maintaining Soil Health

by Anne Verhallen, Soil Management Specialist (Hort.)

There is no magic potion that you can buy to instantly improve soil health! It is a work in progress; in fact, a lifetime of work. Soil health involves a series of biological cycles, and a vast number of soil organisms.

Soil is a biological system, subject to weather and other impacts. Similar to the real estate refrain, "location, location, location", much of soil health comes back to organic matter, organic matter, organic matter. Organic matter is critical to activity of the soil organisms and this activity impacts directly on the physical traits of soils, like structural stability, water infiltration etc.

There are a number of things that you can do to improve or maintain your soil health. Many you are probably already doing. Some practices have an immediate effect on crop growth and your bottom line, others are more long term.

What you can do	***The earthworm's view***	***And the bottom line…***
Rotate, rotate, rotate! but rotate well – include a variety of crop types ie grasses - cereals, legumes - forages etc. – the goal is more than a wheat/soy crop alternation	• Provides a variety of residues and root exudates for soil organisms and the maintenance of soil structure • Supports biodiversity, encourages natural predators	• Research suggests a 10% yield improvement from crop rotation alone • Add in the pest management benefits from reduced pest populations – eg. corn rootworm, SCN
Reduce tillage, **Leave residues** **Use timely tillage** – anything that leaves more residue on the soil surface	• Less physical damage to soil organisms, their burrows and the overall structure of the soil • Residue distributed more shallowly in the soil allows more soil organisms access during the breakdown process • helps to hold moisture • residues shade the soil and maintains a more consistent soil temperature.	• Reduced fuel costs and possibly time • Reduced erosion losses • More active soil = more efficient nutrient cycling • Less crusting/better soil structure = more efficient crop root systems and better scavenging for nutrients • Compaction reduce yields from 0 to 75%, depending upon crop and year
Plant cover crops and green manure crops – crops either seeded or volunteer that are grown to add residues and roots to the soil	• Shades the soil and returns residues that help to moderate temperature and moisture extremes • Residues contain captured nutrients that are returned to the cycle rather than lost to leaching. • Living root system growing and exuding materials that aid soil structure	• Protection from erosion losses. It is estimated that soil blown from a field (wind erosion) contains 10-12 times more organic matter and phosphate than the heavier particles left behind. • Efficient capture and recycling of nutrients reduces losses to the environment.
Apply manure and other organic materials	• Food source for soil organisms • Aids in soil moisture retention	• Reduced fertilizer needs
Reduce pesticides	• Some soil organisms are sensitive to particular pesticides • Generally food and habitat in the form of crop residues/rotation and reduced tillage play a much larger role than pesticides in encouraging active soil life and healthy soil.	• Input costs may be reduced as long as cultivation is not used to replace pesticides.

Summer Seeding Forages?

by Joel Bagg, Forage Specialist, OMAFRA, Lindsay

The most reliable time to seed forages is in the spring. With an April or early May seeding, moisture is usually adequate and the legumes are well established for winter survival. However, spring seeding is not always possible due to a number of factors, including wet field conditions.

Summer seeding of alfalfa forage mixtures can be a viable alternative to spring seeding. Fields seeded this summer can be treated as established stands next year with full yield potential. Do not use companion crops with summer seedings. They compete too strongly for available soil moisture, and will reduce stand establishment.

The following are some points to consider regarding successful summer seeding of forages:

Seeding Date

There are two critical risks associated with summer seeding alfalfa. Seeding too early in the summer increases the risk of dry conditions during germination and seedling development. Summer seedings fail if seeds germinate and then starve for moisture. Seeding too late increases the chance of freeze-up before the alfalfa seedlings are adequately established. Seeding must be early enough to allow the alfalfa to accumulate sufficient root reserves to survive the winter.

Alfalfa needs about 6 weeks of growth after germination to survive the winter, and will survive best if the crown develops before a killing frost. Recommended summer seeding dates are:

- > 2900 CHU areas - August 10th - 20th
- 2500 - 2900 CHU areas - August 1st - 10th
- < 2500 CHU areas - July 20th - 30th.

Lack of moisture for adequate germination is always a risk. If soil conditions are extremely dry, and no rain is in the forecast, abandon the plans for summer seeding.

Most grass species can be successfully seeded up to 2 or 3 weeks later than alfalfa. Birdsfoot trefoil and reed canarygrass have slow seedling development, so summer seedings of these species are rarely successful.

Seedbed Preparation

Seed to soil contact is important for germination, particularly in dry summer conditions. A loose, lumpy seedbed dries out quickly. A fine, firm seedbed is a necessity. Soil should be firm enough at planting for a footprint to sink no deeper than 3/8 inch. Packing before seeding can help. Seed shallow (¼ inch). Always pack the soil after seeding.

Heaving

Summer seedings are more prone to heaving in late winter, especially if root development was limited due to slow germination or cool fall weather. Avoid summer seeding on heavier soils that have a history of alfalfa heaving.

Weed Control

Winter annual weeds like pennycress and shepherd's purse are a common problem. It is not unusual to have to spray early August seedings. If warranted, a low rate of 2,4-DB and MCPA can be used for broadleaf weed control, but be sure that the alfalfa is in the 1 to 4 trifoliate stage. Caution must be used to avoid delaying growth due to the herbicide effect. Refer to OMAFRA Publication 75 "Guide To Weed Control". If these weeds are not controlled, they will show up in the first cut next spring, but should not be a problem after that. Annual grass and broadleaf weeds will be killed by fall frosts. Perennials, such as quackgrass, must be controlled before seeding.

Volunteer Grain

Competition from volunteer grain can be a serious problem. Tillage can reduce the problem. If there is enough moisture, a light cultivation will prompt the grain to germinate. A second cultivation 10 days later will destroy much of this grain. Moldboard plowing to bury the grain is more effective than disking, but may dry the soil out too much. In pure alfalfa stands, a grass herbicide can be used.

Alfalfa Following Alfalfa

Seeding alfalfa after alfalfa is high risk! Old stands of alfalfa release a toxin that reduces the germination and growth of new alfalfa seedlings. This is termed alfalfa "autotoxicity". Establishment problems can result if the existing stand was not plowed or sprayed at least 3 weeks before reseeding. These toxins are present for up to 6 months, sufficient to permanently reduce new

stand yields. For maximum yields, one year of an alternate crop is required. The toxins are not present the first year in new seedings, so seeding failures can be reseeded without an autotoxicity effect.

Summer seeding of alfalfa is an alternative to spring seeding. Good management and attention to some of the potential pitfalls is required to minimize the risk of establishment failure. For more information refer to "Summer Seeding Forages" on the OMAFRA Forage Website http://www.gov.on.ca/OMAFRA/english/crops/field/forages.html.

Bin-Run Soybean Seed

by Horst Bohner, Soybean Specialist

Many producers plant bin-run soybean seed to reduce production costs. However, research from across North America has shown a small yield advantage to using certified seed (Table #1).

What is the reason this yield advantage exists? The greatest reason is likely lower quality bin-run seed. All good crops start with high quality seed. If you anticipate planting bin-run seed next year, plan ahead to obtain high quality seed.

Is it possible to save soybean seed and be successful? Absolutely! However, extra care must be taken to obtain high quality bin-run seed

Tips for top quality seed.

1. Use seed from a crop that was originally planted with high quality, pure seed.
2. Take seed only from a clean field. Scout seed fields for weeds and diseases during the growing season. Bin-run soybeans can spread weed and disease problems from one field to another. Using a field that has been part of a good rotation will decrease the likelihood of spreading diseases and pests.
3. Physically clean the combine. Harvest a small area separately first to ensure the combine is clean.
4. Monitor seed at harvest for seed borne diseases especially phomopsis, the major culprit in seed quality deterioration.
5. Harvest soybeans for seed first. Wet/dry cycles cause significant deterioration in seed quality. One method to assess mechanical damage from the combine in the field, and make adjustments throughout the day, is to us the Hypochlorite Soak Test, (Agronomy Guide, Publication 811, pg. 112).

Table 1. Field Performance of Farmer-Saved and Professionally Grown Soybean Seed Lots[1]

Location	Comparisons	Advantage of Professionally Grown Soybean Seed (Yield)
Ontario trials	34	+0.7 bu/a
Illinois trials	—	+1.1 bu/a
Illinois/Crop Improvement Assoc.	5 acre side-by-sides	+2.7 bu/a
Wisconsin/Soybean Yield Contests	—	+2.2. bu/a
Ohio trials	—	+1.4 bu/a
North Carolina trials	204	+1.9 bu/a
North Carolina/Official Variety Tests	—	+1.0 bu/a
15-state trial results	769	+1.9 bu/a

1 "Field Performance of Farmer-Saved and Professionally Grown Soybean Seed Lots", by E James Dunphy and Janet M Ferguson

6. Gentle handling is a must. Minimize the height from which seed is dropped into bins, wagons etc. Run augers full, at as low an angle, and as slow, as possible.
7. Harvest close to 14% moisture. Excessively dry seed will be cracked and damaged more easily.
8. Seed soybeans should be dried at temperatures below 40ºC. Some seed companies will not accept the use of any heat in conditioning soybeans.
9. Ensure the seed cleaner is removing all foreign matter.
10. Clean bins thoroughly. Vacuum grain dust and remove moldy grain.
11. Fluctuations in temperature and humidity during storage can decrease germination and vigour. A germination and vigour test should be taken at harvest and also **before planting.**

If your bin-run seed is of poor quality **do not plant it**. One option to lower the cost of certified seed is to decrease the seeding rate slightly when planting under good conditions. Another option is to find a seed lot or variety with small seed. Since soybeans are sold by the bag and not by the number of seeds, a bag of smaller seed will go further.

Remember, the newest genetics (hopefully the best) are only available as certified seed.

Help Us Learn!

by Peter Johnson, Cereal Crops Specialist

Frustrating! March, 2002, off to another presentation, another opportunity to expound on all the wonderful things to improve crop production. Five minutes into the talk, and BOOM! John at the back of the room yells out - "that doesn't work on my farm!"

"How do you know?", I challenge. "Did a plot last year", he answers. "Lost 5 bushels per acre following your advice". "Did you send the information in?" I ask. "No", comes the response.

NO? NO? It's March! How does this happen? How do we miss this information, these learning opportunities that could help us all improve?

Let's do better! First, participate in group projects. We need at least 30 locations from any test to really have valid data.

Second, send the data in! How can we move forward without the information. One cool trial with interesting results may spark 30 trials next year. Ferret it out. Send in your data, your neighbour's data, the local agribusiness outlet's data. My guess: there is 3 times the number of trials out on farm fields than we ever see. Simply unacceptable!

Third, do valid trials. Ian McDonald has written volumes on this, and will again. Replicate where possible. Use a check treatment on both ends and once in the middle to assess plot variability.

Last, recognize the value. Margins are incredibly tight. Many of the successful "tricks" our plots have evaluated increase yield 3 to 8 bushels per acre, at little to no additional cost. That increases profit $10.00 to $25.00 per acre. Worth chasing? You bet!

Of course, realize one last item that was wrong with my initial scenario. Johnson is never wrong……???