



The Cypress Forty Mile Agricultural Service Board (ASB) Partnership

"Two agricultural service boards working together on sustainable agriculture projects targeting soil conservation, integrated cropping practices, sustainable grazing and riparian management, nutrient management, and water quality projects"



Expensive Fertilizer, Rising Fuel Costs...It's Enough to Make Your PULSE Go Wild! From the Jan 30, 2006 Issue of Agri-News



Field Pea crop

"Farmers will want to have a finger on their pulse for 2006...pulse crops that is," says Ron Heller, Reduced Tillage LINKAGES (RTL) agronomist, Vermilion. "It makes sense to point out the alternatives available to farmers when agriculture's slumping margins seem so discouraging. Pulse crops, such as peas and lentils, are not new in many areas of Alberta, yet most farmers have never even tried to grow them. Now might be a good time."

Direct seeding farmers have found that pulse in the rotation is crucial to their overall cropping system. Continuous cropping requires a knack for flexibility and sometimes luck amidst the unpredictable, so growers must find a way to maintain a steady pace in year-to-year cash flow. Pulse crops, as part of a reduced tillage plan, can be the pacemaker that helps keeps that rhythm smooth and constant.

"All farmers face problems caused by rising costs of fuel and fertilizer, crop health products and machinery," says Heller. "Farmers who direct seed do have some relief, knowing that their costs are at least as lean as possible. Efficiencies are gained by one-pass seeding, where seed and fertilizer are precision-placed in a manner retaining surface mulch to prevent the seedbed from drying out. Another benefit comes from the N-fixing capability of pulse."

One of the big decisions farmers will have to make this year is whether or not they can afford normal fertilizer rates. Many will be trying to find ways to reduce their fertilizer requirements. By planting and growing peas, growers can reduce their overall demand for additional fertilizer.

Not every field will be ready for peas come spring; however, many stubble fields will have depleted soil nitrogen levels due to the high yields harvested in 2005. Those conditions are best for peas, but only a soil test can confirm.

"Although there is an advantage of seeding peas very early in the spring, first-time growers should be very cautious about perennial weeds if they did not have a pre-harvest strategy last fall, and winter annuals unless they are doing a pre-seed burnoff this spring," says Heller. "In most cases, peas will still require early in-crop spraying to avoid yield and harvest problems due to weeds. Herbicides for small emerging annuals and season-long control of flushing weeds is the standard, but can cost between \$20 and \$30 per acre. However, a lot of that cost is offset because peas are legumes and can supply their own nitrogen, which means less purchased fertilizer."

Profit and crop nutrition is more than dollars spent on fertilizer, and handling pulse crops for quality seed isn't for everyone. With the high-volume seeding rate of peas, minimizing cracked seed while optimizing inoculation takes practice. Peas do go well with direct seeding because they don't require sophisticated openers for seed and fertilizer separation.

"If proper residue management was in the fall, there should be no real problem for novice direct seeders," says Heller. "Some box hoe-drills could even work. Peas can be seeded up to three inches deep and still perform well."

With seasonal maturity earlier than with canola or wheat, seeding field pea from mid-April to mid-May helps balance seeding, spraying and labor requirements.

When it comes to the high cost of fuel and fertilizer, not only is less fuel used when tillage is reduced, but less soil mineralization occurs. Organic matter from straw and chaff residue breaks down slower than under conventional tillage systems, but soil quality, including water holding capacity, nutrient transfer, and tillth seem to improve in the long term.

"Placement of purchased inorganic fertilizer in close proximity to the seed is traditional agronomy for productive prairie cropping systems, but pulse crops may be changing that," continues Heller. "For example, pea vine differs significantly from wheat straw. It tends to have higher concentrations of nitrogen; therefore microbial decomposition of the residue does not immobilize soil nitrogen to the same extent as other crop residues. Along with the known nitrogen-fixing power of legumes, this can lead to improved nitrogen cycling and subsequent soil fertility. For these reasons, we know direct seeding pulse crops offer new ways to manage soil fertility."

Peas are also valuable livestock feed and can be baled behind the combine. This is a form of residue management complimentary to direct seeding. The vine-like nature of pea stubble can sometimes be a nuisance for direct seeders. In rotation, pulse crops provide growers with a management alternative for heavy trash buildup, due to less crop residue than what might occur with continuous cereal cropping. The added benefit of returning manure to the fields can offset some organic matter loss from baling and augment the soil nutrient supply.

"When things get tough, pulse crops are tough to beat," quips Heller. "There are major disease risks with some pulses, but most can be managed with rotation, variety selection and wise use of crop health products. There might even be a benefit in sod-seeding peas, because of the nitrogen fixation."

Confident that farmers will like what they see, Heller feels growers should try a few acres first, for the experience, but mainly as a good way to cut some cropping costs. "The savings start immediately in terms of less fuel and fertilizer, and should continue over time with more direct-seeded pulse crops," he says. "Rotation is important, and it's just possible that a stronger pulse commitment may really mean sustainable health for agriculture."

There has been steady demand for pulse crops, and strong market premiums in the past. The price of peas is currently down, which could mean reasonable seed this spring.

Farmers interested in finding out more about how to grow pulse crops in rotation are encouraged to contact Heller or any of the RTL agronomists. The RTL website address is www.reducedtillage.ca/. The site contains good information about direct seeding as well as a direct link to its partner, the **Alberta Pulse Growers Commission** at www.pulse.ab.ca or Contact: Ron Heller (780) 853-8262

Cropping decisions 2006 — Can you afford to put a crop in the ground this spring? Can you afford not to?

Rising input costs, low commodity prices, what to seed, would fallow be a good option, can I even afford to get something growing - these are questions on the minds of many producers as seeding plans for the spring of 2006 approach. I recently spoke to Rob Dunn, Conservation Cropping Specialist with Alberta Agriculture to look into his crystal ball and asked him these very questions. This is some of the insights and suggestions Rob shared with me to pass on to producers. What are some crop options to consider? For some producers, sticking to their rotation plan will be their decision. For other producers thinking about possibly increasing summerfallow acres, Rob suggested producers consider options that will provide soil cover, such as cereals for greenfeed or planting legumes to fix nitrogen into the soil for the following year's crop. A few ideas Rob shared with me were the following crops to consider — wheat; controlled input costs, forages; to fix nitrogen into the soil, pulse crops such as peas or chickpeas - higher input costs to consider such as fungicide use. One possible suggestion was to seed a cheap cover crop using "bin-run" wheat or barley. Costs would include cleaning, planting, field preparation (weed burn-off, rut leveling), then to take the crop to heading stage to use up the excess moisture and then spray with glyphosate to kill off weeds, then harvest the crop; crop price likely will be poor — but at least the bins won't blow away. Another suggestion was to seed "bin run" peas that are not "too dirty" to save cleaning costs which will add some fixed nitrogen to help reduce nitrogen costs for the following year's crop. Rob suggested spraying out the crop and leaving the biomass vs. taking the crop seed or forage. Spraying out the crop and leaving the biomass leaves roughly 100 lbs of nitrogen vs. taking the crop for seed or forage which leaves roughly 20-30 lbs of nitrogen. The question on would fallow be a good option. Rob suggested it might not be the best idea in areas with high subsoil moisture as if soil has salinity potential; the excess moisture could cause a worsened saline problem if the area was fallowed. Rob also commented that spending the money to get an accurate soil sample to check soil fertility levels would be money well spent vs. cutting back on fertilizer spending without first having this information available to make a decision. Knowing what you have to work with in the soil will be highly valuable to optimize fertilizer applications to not reduce traditionally high yields. If someone can cut their variable costs by 15 percent, they would be doing a pretty good job of managing their costs.

Green Manure as an option

Green manuring is the practice of growing a short-term crop to improve soil tilth, add organic matter and nutrients (especially nitrogen) to the soil, and reduce erosion by providing soil cover. Green manuring with legumes (peas, clovers, lentils, etc.) is called legume green manuring. After eight to 10 weeks of growth, the green manure crop is worked into the soil, desiccated with herbicides, or hayed. If a green manure is allowed to grow too long, it will deplete the soil moisture reserve for the next year.

While almost any crop may be used as a green manure crop, annual legumes, such as peas and lentils, or biennial legumes, such as sweet, red or alsike clover, are preferred because these crops can fix nitrogen; that is, with the help of Rhizobium bacteria, taking nitrogen from the air and convert it into a form that plants can use.

Tilling down the crop returns most of the fixed nitrogen to the soil. However, it is important to leave some of the crop residues on the soil surface to reduce the risk of soil erosion. Desiccating or haying the crop returns about 60% of the plant material and nitrogen to the field, so these options provide almost as much nitrogen benefit as tilling down the crop. Desiccating the crop maintains a crop residue cover to reduce erosion and enhance snow trapping over the winter. Haying the crop also leaves stubble to prevent erosion and trap snow, and it offers the added advantage of economic returns from the hay.



Green manures add organic matter and nutrients to the soil. Photo Courtesy of University of Manitoba

A well managed green manure crop boosts the yield of a subsequent cereal crop. Over the long term, the practice of green manuring will improve soil organic matter content and productivity. It is used as a soil building practice that adds organic residues, conserves and recycles plant nutrients and protects the soil from erosion. It is a viable alternative to conventional summerfallowing and can reduce the amount of nitrogen fertilizer required. Legume green manuring is a management tool worth considering.

In addition, a well established cover crop can provide good weed control. Sweet clover and its residues maintain excellent weed control without cultivation or herbicide applications into the year following the green manure crop.

Recent Manure Management/Nutrient Management Planning/Composting Workshop



At the recent March 1 manure management/nutrient management planning and composting workshop that was hosted in Seven Persons, approximately 10 participants comprised of mostly Hutterite colonies from Cypress and Forty Mile were provided with useful information related to manure management, nutrient management and composting technologies as it applies to manure and mortality composting.

Presentations from The Natural Resources Conservation Board (NRCB) covered compliance regulations under AOPA (Agricultural Operations Practices Act). Permits are required to build or expand a confined feeding operation (CFO) but not for a wintering site or livestock corrals. Information was shared regarding grandfathered operations that existed prior to January 1, 2002 AOPA regulations and suggested even if an operation was grandfathered during this time period, improper management issues that pose an environmental risk such as manure run-off into creeks, streams, or other waterbodies would not be acceptable practices even under Jan 1, 2002 AOPA guidelines and would be also deemed non-compliant under current AOPA guidelines. If producers are uncertain whether they are compliant with current AOPA regulations, what permits are required, or for general information regarding any "grey" areas, it was encouraged they contact the NRCB office or the local NRCB approval officer Myndy Machan at (403) 381-5112 to get clarification as they are very willing to help producers obtain the information they may require to answer such questions. Anyone planning to build or expand a wintering site or livestock corral should contact the NRCB prior to construction to ensure the proposed structure would not require a permit from the NRCB. An inspection can be triggered if the NRCB receives a complaint. For information on the Natural Resources Conservation Board (NRCB) check their website at www.nrcb.gov.ab.ca. Dial 310-0000 first for a toll free connection or in Lethbridge at (403) 381-5166.

Stockpiling manure not the same as composting

Producers who stockpile manure thinking they're producing compost, should think again, says an AgTech Centre researcher. Stockpiling and composting are two entirely different processes with entirely different results.

"Some producers believe as long as manure sits for a while, the pile eventually becomes compost," says Virginia Nelson, an engineer-in-training and composting researcher at the Alberta Agriculture Food and Rural Development (AAFRD) AgTech Centre. "Manure piled over a period of time simply becomes older, usually drier manure that retains some of the same features as raw manure."

Nelson's comments on the two approaches can be found in the AgTech Centre Innovator, which outlines the differences between stockpiling and composting manure and provides producers with background on the options available.

Nelson says the AgTech Centre has a number of projects related to composting and the world of composting is evolving rapidly with new options for managing manure.

Composting manure results in a product that is highly organic, free of weed seeds and harmful pathogens, such as E.coli and salmonella bacteria, and less harmful to the environment.

Compost can also help reduce pathogens, says Nelson. "Overall, studies indicate that many pathogens and weed seeds are destroyed in a properly managed windrow if the temperature remains above 55 degrees for at least two weeks. "Heat during the composting process destroys seeds and most of the harmful bacteria," says Nelson. Studies show composting can help destroy weed seed viability. At the AgTech Centre, studies have found a 96.5 to 100 percent kill rate for all of the weed seeds when composting. These results are confirmed by studies by Olds College and Agriculture and Agri-Food Canada.

"Manure volume is reduced by 60 percent, leaving fewer products to be handled or spread on fields. The compost also holds water well, which improves the soil's overall moisture content." Stockpiled manure decomposes slowly with little oxygen, which is a key element in the composting process. Although stockpiled manure adds organic matter and nutrients to the soil, it also has a persistently strong odor when spread, weed seeds that can survive for a considerable amount of time and an environment where pathogens can thrive.

Producers need to assess their manure handling capabilities before determining which option best suits their operation. Feedlots with an adequate land base readily available for raw manure disposal might find composting just adds costs, says Nelson. However, smaller operations or those without sufficient land base may find that composting is a viable option. Cow/calf operators may not have the volume of manure necessary to produce the compost, but land-based operations, such as dairy, hog or poultry, which produce large manure volumes, may see composting as an excellent solution.

"Some hog producers with dry manure production systems compost manure and sell the composted product," says Nelson. "In some cases producers have delivered compost to a central location in a community where home gardeners can help themselves."

Producers looking at adopting a composting system should consider the costs and time involved, says Nelson. Drum-style turners are typically used to turn the windrow and break up large clumps of manure. These turners come in a variety of sizes and the price depends on the size and the type of equipment. Small three-point hitch models start at \$15,000, while large self-propelled units cost around \$250,000.

AgTech Centre research shows it costs approximately \$8.46 per tonne to produce compost from feedlot manure. Nelson says that cost includes the use of a 120 horsepower tractor equipped with a tow-behind windrow turner used for about 400 hours per year.

"The bottom line is the value of composting depends on each individual operation," she says. "Producers need to ask themselves if their operation is suited for a composting system."

While manure is one product that can be easily composted, other agricultural "wastes," such as livestock mortalities, are being studied.

"We're finding composting can also be an economical and effective alternative to shipping dead animals for rendering, burial or incineration," says Nelson.

For more information and reports on composting options, producers are encouraged to contact AgTech Centre at (403) 329-1212 or visit their Web site, [http://www1.agric.gov.ab.ca/\\$department/deptdocs.nsf/all/eng3096](http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/eng3096).

The AgTech Centre is part of Alberta Agriculture, Food and Rural Development's Technical Services Division and has a mandate to support all aspects of agricultural sustainability.

Watch for These Upcoming Events

First Annual General Meeting and Membership for the Milk River Watershed Council - to be held **March 31, 2006** at the Civic Center in Milk River begins at 4:30 p.m. and dinner will be served. Please contact Sandi Riemersma, M.Sc. Milk River Watershed Council Canada at ph/fax: (403) 684-3117 or cell: (403) 921-5667 if you plan to attend.

Milk River Watershed Stockman's Grazing School - A three day stockman's grazing school organized by a collaborative effort between Cardston County, County of Warner, Counties of Cypress/Forty Mile, and The Milk River Watershed Council of Canada will be hosted **June 19 to 21, 2006**. Speakers will cover grazing principles and management practices, stocking rates, native/tame pasture management, range plant I.D., range health assessment, riparian plant I.D., riparian health assessment, calculating litter, species at risk, weeds and weed I.D., salinity and grasses, weed management with bio-controls, water quality and more. Mark your calendar. Watch for more details soon! Register early, space will be limited. Can't wait? Contact Tim Romanow - Cardston County (403) 892-8900, Keston Prince - County of Warner (403) 642-2255, Warren Burgevit - Cypress/Forty Mile Counties (403) 548-0653 or Sandi Riemersma - Milk River Watershed Council Canada (403) 921-5667.

Diagnostic Field School **June 27-29, 2006** in Lethbridge, Alberta. Watch for details.

3rd Annual Southern Alberta Grazing School for Women 2006 - **July 19-20, 2006** at the Antelope Creek Ranch in Brooks. A two day grazing school organized by a collaborative effort between the County of Newell, County of Starland, County of Vulcan, County of Cypress/Forty Mile, PFRA, and Cows and Fish. Mark your calendar. Register early, space will be limited. Watch for more details soon.

Alberta Soil Science Seminar **July 24-25, 2006** in Lethbridge. Contact Rob Dunn, Conservation Cropping Specialist Alberta Agriculture, Food and Rural Development for more information at (403) 381-5904.



Southern Alberta Conservation Association

The 2006 Southern Alberta Conservation Association 13th Annual Dryland and Irrigation Reduced Tillage Conference will take place **December 5 and 6, 2006** in Medicine Hat, Alberta Cypress Centre. Mark your calendar to attend. Watch for more details coming soon!

The Western Canadian Grazing Conference **Dec. 6-8, 2006** at the Mayfield Inn Edmonton, Alberta watch for details.

For more information on the Partnership's program, or to suggest project ideas, please contact Warren Burgevit, Conservation Coordinator at (403) 548-0653 cell, (403) 528-2553 fax or via email at warren_burgevit@hotmail.com. Other information on our program can be found at the Agricultural Services section of the following County websites: www.cypress.ab.ca and www.fortymile.ab.ca.