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Crop Protection It Doesn't Have to be a Guessing Game Weeds & Diseases & Insects

Securingour future inpulses

A Capital Campaign For a New Pulse Field Lab

It's no accident that Canada has become a world leader in pulse production. The road to our nation's success in pulses has taken vision, determination and hard work, as well as cutting edge research and development.

The CDC Pulse Breeding Program in Saskatoon has released new pea, lentil, chickpea, and bean varieties selected from over 40,000 plots grown annually. Remarkably, these accomplishments have been made with no real increase in infrastructure to accommodate programs and personnel required for this research. Present field lab facilities are outdated, cramped, and poorly ventilated – a sad return for the years of effort and hard work made within their walls.

It's time to get serious about our industry's future, and make a commitment to ensuring Canada remains a dominant force in the world pulse market. Saskatchewan Pulse Growers is pleased to announce its commitment to leading a campaign to raise \$1.5 million to develop a pulse field lab. This effort will make up approximately 15 per cent of the estimated \$10 million needed to develop a world-class multi-user pulse field lab worthy of our position as a world leader in pulse production.



For information on contributions, please contact the SPG office at:

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CHAIRMAN'S MESSAGE

Glenn Annand Chairman of the Board

Research Funding a Collaborative Effort

The one to two dollars per

acre levy is thought of by

some as "another tax", but

I think of it as a joint effort

by all pulse growers to

tackle some common

problems that we can't

afford to tackle individually.

First, let me thank Lyle Minogue

for the leadership and commitment he provided to our industry. He is highly respected by all the staff and board members with whom he worked. He was also widely respected by other pulse organizations, farm organizations and governments for his many strengths as a farm leader. I'm sure we will see Lyle continue as a major influence in the ag policy sector.

One of the most important pulse initiatives in the past year was the development

of a national pulse research strategy discussed by Holly Rask at Pulse Days. Now that all the key research areas have been identified we have moved into the implementation stage. In today's economic climate this is a challenging task. The key stakeholders are the pulse grower groups, agribusiness, the provincial governments,

and the federal government. As pulse growers, we have always committed a large part of our levy dollars to research and have been able to leverage matching government funds in most cases. As growers, we will pursue a further commitment from government to invest in pulse research.

When deciding on their support, governments first need to consider the strong payback to money spent on research. It's not recreational spending – it's spending which will facilitate wealth creation. Second, governments need to target their spending based on future demands and competitive advantages rather than historic thinking. I would estimate that we are only halfway to successfully educating the various governments about the current importance and potential growth of the pulse industry. Governments also need to consider that research spending is considered "green" under GATT rules, so why not support agriculture by supporting research which strengthens our future? Global agribusiness research spending will be on the large acreage crops such as corn, wheat, rice and soybeans. Some of that research can be applied to novel pulse research, if these larger businesses see good potential for return on investment. Smaller agribusiness firms will also do pulse research where they feel they can get payback. Neither of these groups will make their decisions based on our profitability or sustainability. Agribusiness has often supported our industry through event sponsorships, how-

> ever, and we are currently canvassing them for money to build a pulse field lab.

As a key stakeholder, growers also need to think about their commitment to research. Throughout Pulse Days and Saskatchewan Ag & Food's Regional Winter Pulse Workshops, the comparison has been made between our levy and research spending

with those in competing pulse producing countries. I think we are ahead now in production but I don't think we will stay ahead if growers and governments don't invest in the research. I believe our natural environmental advantage will be eroded by technological advances made in other countries that do more research. The one to two dollars per acre levy is thought of by some as "another tax", but I think of it as a joint effort by all pulse growers to tackle some common problems that we can't afford to tackle individually. At the same time, we retain much greater control of where our levy money is spent than we do with income tax dollars. The SPG Board has raised this as an issue so that all pulse producers can think about, talk about, and eventually decide if Saskatchewan pulse growers need to put more money into research through increasing our levy. What do you think?

> Regards, Glenn Annand Chairman, Saskatchewan Pulse Growers



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Published for:

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Published by:

Issues Ink 203 - 897 Corydon Avenue Winnipeg, MB R3M 0W7 Phone: (204) 453-1965 Fax: (204) 475-5247 e-mail: issues@issuesink.com web site: www.issuesink.com

Publication Dates:

October, January, March, June

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Canadian Mail Publications Sales Agreement #40030841 Postmaster please return form 29B and 67B to Publisher. PRINTED IN CANADA



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TEP PXCEANCP

Theresa Le Director of Market Development for Pulse Canada

Opening Market Doors

Market development for

Canadian pulse crops generally falls into two areas: the introduction of new uses for pulses, such as promoting the use of feed peas to countries that have not used peas as feed previously; and the exploration of new markets for Canadian pulses. Both involve increasing the knowledge and awareness of Canadian pulse crops.

When it comes to market development, timing is everything. World events, economic conditions, political climate, and the state of the environment all influence the success of a market development program. However, one of the most limiting factors in market development is market access. Canada might have the product, and buyers may want Canadian pulses, but government policy can stand in the way. At times, the policy is designed to provide protection to a domestic industry, while at others, the barriers are there only because no one has ever challenged them.

Canadians want the same access to markets enjoyed by our competitors, and by competitive products. If we are selling peas as a source of protein and competing with oilseed proteins, then all we want is the same tax and tariff that is applied to those products. If peas have to compete as a source of energy with corn and barley, then again, give peas the same tax and tariff.

China has always been identified as having the greatest market potential for Canadian feed peas. It has 54 per cent of the world's hog population and is about 24 million tonnes short on protein and energy feeds. With 1.3 billion people, consuming roughly 36 kilograms of pork per capita per year, the country seems like a natural destination for Canadian feed pea exports. However, getting feed peas into China is not so easy.

China presents many challenges. First, peas are not currently used as a feed ingredient in China, and getting people to try something new takes a bit of work. But more importantly, Canadian peas face taxes and tariffs totalling 25 per cent when entering China. Compared

with competitive products like soybean meal at 18 per cent, government policy prevents competitive pricing of feed peas. However, with the help of government insiders in Ottawa and Beijing, the pulse industry did something that would have been considered a long shot four years ago. As part of the China-Canada World Trade Organization accession agreement, the Chinese agreed to link feed pea tariffs to those of soybean meal.

Unfortunately, classification and taxation of peas were not addressed. The Chinese VAT. similar to our GST, is 17 per cent on humanconsumed food, but only 13 per cent on animal feed to encourage the development of an animal feed industry.

However, since China

feed quality peas, if

human market were

imports both food and

peas brought in for the

represented as animal

feed, they would get a 4

per cent tax advantage.

US\$150,000. The challenge for the Chinese

government is to find

a way to classify

imported peas as

either food or feed.

Again, I am pleased

to say we have made

great progress in con-

government this is nec-

essary, and I believe we

will have this final bar-

rier removed early this

year.

vincing the Chinese

On a vessel of feed peas that would be

worth about

As part of the China-Canada World Trade Organization accession agreement, the Chinese agreed to link feed pea tariffs to those of soybean meal.



Given the right policy conditions, China's hog production represents a huge market for Canada's feed peas.

If all the conditions are right, China may well become the next large importer of Canadian feed peas.¥

🔆 in brief

Market access in China means removing tax, tariff, and classification barriers.



CROP PROTECTION

by Robynne M. Anderson

🔆 in brief

Among the areas to be addressed in the new national crop protection strategy are: *¥***registrations** for chemistry *integrated* pest management (IPM) *international ¥* tolerance limits

Protecting Assets

Growing a crop is a complex

business and protecting it is of utmost concern for producers. However, protecting the market the crop is sold into is just as important. That is the challenge for those putting together a national crop protection strategy for the pulse industry. "Any time you start using crop protection products you have to look at the entire marketing chain," explains Gordon Bacon, CEO of Pulse Canada. "You want (farmers) to use products that aid production, but in no way harm the marketing (of crops to consumers)."

industry taking a multi-pronged approach. In addition to addressing market access issues

"Everybody worldwide is interested in protecting human health and the environment."

That dilemma has resulted in the pulse from tolerances, the strategy also

involves improving the choices Canadian producers have for crop protection products, as well as tackling stewardship issues. The

solutions to all these issues are complex - producer groups, chemistry manufacturers, and regulators around the world will need to assist in ensuring a positive outcome.

A recent example in the canola business drives home the significance of these issues and the effect they can have on both production and trade. In 1999, the manufacturers of lindane agreed to voluntarily withdraw the product from the market. The decision to discontinue this popular and well-used chemistry was based on a trade issue with the United States which threatened the long-term health of the Canadian canola industry. The lack of a tolerance for lindane residue in the U.S. (applications for a tolerance level and for registration are currently before the U.S. Environmental Protection Agency (EPA)) meant that any canola shipments showing even the tiniest amount of lindane could be rejected at the U.S. border. Given the size of the American market for Canadian canola, the realistic solution was to withdraw the product to avoid the trade risk. For farmers, however, this meant losing a product to control flea beetles.

Registrations

Overall, pulse growers are trying to obtain access to more chemistries without creating risks. This has involved the combined efforts of the Saskatchewan Pulse Growers, led by Garth Patterson, the other provincial pulse associations, and Pulse Canada. A good example of their success is the expanded label registration granted this year to Crown seed treatment to manage chickpea disease.

At the outset, getting access to crop protection was a question of the return on investment for manufacturers. Registering chemistry with the Pest Management Regulatory Agency (PMRA) is an expensive and time-consuming endeavour. As a result, product sales must justify the effort and cost from the perspective of manufacturers.

Originally, the pea industry used programs like the User Requested Minor Use Registration to encourage registrations of the products. This program partners user groups and manufacturers to get registrations moving forward. The problem is: what is minor use? At millions of acres, do peas qualify anymore? Or do you consider that in any one year, only a few hundred thousand acres of peas may need specific disease control options? Or think of controlling grasshoppers in lentils, where an outbreak might only occur on a limited area in a couple years out of 10.

"In an industry that grows rapidly, it is a challenge to get crop protection products as quickly as the industry evolves," says Bacon. In addition to registering products for specific crops, there is the need for label approvals for specific diseases or insects, or removing recropping restrictions. It is generally easier to get a label extended or altered for an existing product than to get new chemistry into the system. So it is not hard to understand why strategies are needed to build relationships between the grower associations and the manufacturers, as well as the regulators.

Stewardship

One part of working with the PMRA on increased access to needed chemistries may be looking at the total stewardship of crop protection decisions. The PMRA supports reduced risk and use for crop protection, and has resources dedicated to these issues. Other grower groups have made use of the programs to develop integrated pest management (IPM) systems.

Bacon says the pulse industry may also work on these stewardship initiatives as part of the national strategy on crop protection. This would include in-crop strategies for pest management, such as scouting and ascertaining minimum threshold levels for pests before chemical control is warranted. As well, Bacon wants the use of pulse crops in rotation reviewed as part of an overall IPM system for farms. He is enthusiastic about the role pulses play in helping break disease cycles, and in providing nutrient benefits over the multi-year view of field health. In his opinion, these are all important reasons for the PMRA to work with the industry to make pulse production more successful.

Tolerances

That said, Bacon's top priority is to ensure any crop protection use does not affect market access. "Everybody worldwide is interested in protecting human health and the environment," says Bacon. It is considered a national right to screen substances that enter the border and Bacon "can understand the perspective of importers – as a Canadian and as a member of the pulse industry."

The complexity of the myriad of nations seeking separate registrations for products is already great, and add to that the increased use of tolerance limits by regulators. From the Food Quality Protection Act in the United States to new legislation in the European Union, there is a new approach to monitoring residue limits on commodity shipments. This means tolerances in key markets for any products being used in Canada must be understood by both growers and exporters. In November of 2001, this issue was driven home when a Canadian pulse shipment to Europe was rejected for residue that was higher than the Maximum Residue Limit (MRL) established by the EU.

Part of the solution is education and shared timing. The pulse industry in Canada must make sure it fully understands the impact of using crop protection products before tolerance limits are established in key markets. Bacon adds, "If we use material they (foreign buyers) aren't familiar with, we need to foster comfort among them." We want to show that what is considered safe in Canada can be considered safe anywhere in the world.

Another part of the solution is to look at joint registrations. Work under the North American Free Trade Agreement has encouraged the PMRA and EPA to work together to register some products. This removes the risk of a trade barrier. A good place to start is seed treatments on U.S. beans, since seed is regularly imported from the United States.

Broader solutions are what's needed. Undoubtedly Pulse Canada will be part of the embryonic movement to address the challenges of making tolerances more uniform around the globe, understanding the meaning of testing that can be

In November of 2001, this issue was driven home when a Canadian pulse shipment to Europe was rejected for residue that was higher than the Maximum Residue Limit established by the EU.

reduced to infinitesimal amounts, and creating realistic workloads for chemical manufacturers who may never sell any product into these countries requiring tolerances.

Next Steps

Among the initiatives already underway are meetings of pulse representatives with manufacturers and Canadian regulators. Meetings have also occurred with the U.S. Dry Pea and Lentil Association regarding shared areas of interest including joint registrations, integrated pest management, and tolerances.

Bacon is pleased foundations are being laid to bring together more American and Australian involvement in crop protection issues. "Australia, Canada, and the U.S. represent the major exporters of pulses and hopefully we can find ways that all of our regulatory agencies can work with other markets like the EU to address these challenges."

An action plan for future work is also being prepared for the Pulse Canada Board. Given the complexity of the issues involved, the national strategy for crop protection will be a long-term project that will demand innovative solutions. Ultimately, it means getting growers the products they need to protect both their crops and their markets. by Delaney M. Ross

These tips will help manage weeds in pulses, and benefit every crop you grow.

🔆 in brief

Think Integration for Weed Control

Weed management for pulse

crops is a full-time job. Pulse crops are generally less competitive than other crops, and the options for controlling weeds during the crop year are limited, so it is important to control weeds outside the crop year. Pulse farmers need to take an integrated approach to weed management, and the good management practices they incorporate into the rest of the rotation will have benefits for all crop types.

Clark Brenzil, Provincial Weed Specialist with Saskatchewan Agriculture and Food, suggests a number of steps that farmers can take throughout the rotation cycle to cut down on weed pressure in pulse crops. These eight steps are all part of an integrated weed management (IWM) strategy that focuses on preventing weeds first, and then following up with control when necessary.

- 1. Quality Seed of a Competitive Variety. First and foremost, use good quality seed for all of the crops in your rotation. Selecting the most aggressive variety for the crop you are growing will help in the competition with weeds. Brenzil suggests that farmers buy good quality seed, or select the best quality bin-run seed, so the crop emerges quickly with vigorous seedlings. Testing bin-run seed for germination is a good way to tell how well the crop will come up. "Whichever comes up and fills the available space first wins for competitiveness," Brenzil says.
- 2. Clean Seed. Using clean seed will also avoid introducing new weeds into other fields. Brenzil says certified seed is a good way to ensure both clean and quality seed. Using certified seed not only guarantees quality and mechanical purity, but it verifies germination percentage, freedom from disease, and the genetic identity of your seed. However, Brenzil adds that if farmers choose to use bin-run seed, take it to the local seed grower to get cleaned.
- 3. Clean Equipment. Brenzil says that dirty equipment will carry seed from one field

to the next, nullifying the benefits of using clean, quality seed. Taking 15 to 20 minutes to knock clods off the tillage equipment can make a difference. At harvest, open all the trap doors and run the combine at top speed to clear it out, then use the compressor on the service truck to blow out as many of the seeds as possible. Do it before you leave the field, or at least in the yard before moving to another field.

- 4. Enough Seed. "Don't scrimp on the seed," Brenzil warns, "because if there are low plant populations, particularly in the more competitive crops, farmers don't get the same benefits." For instance, in a crop like barley, Brenzil says that using the high end of the recommended seeding rate or even higher can reduce weed biomass significantly. In pulse crops though, seeding rates are a matter of striking the right balance between establishing a good canopy cover, and preventing a dense canopy that can increase disease pressure. Follow the recommended rates.
- **5. Seed Only to Moisture.** While this is pretty obvious to most farmers, Brenzil reminds growers to seed as shallowly as possible, just reaching sufficient moisture. "Don't put crops in the ground deeper than absolutely necessary," he says. He adds that people using low disturbance-direct seeding systems have the advantage over conventional tillage farmers, because conventional tillage dries out the soil, and farmers have to seed deeper to reach moisture. The standing stubble in zero-till fields also reduces moisture losses from wind evaporation.
- **6. Feed Only Your Crop.** When using fertilizer in your system, Brenzil reminds growers to place fertilizer in a band near the seed row, using recommended rates and placement. Targeted fertilizer placement, particularly for crops with a high nutrient requirement, favours the crop, with more fertilizer available to the crop and less to the weeds. With



When it comes to pulse crops, the options for controlling weeds in-season are limited, so it is important to tackle weeds outside the crop year.

pulse crops, there's an added bonus – by producing the majority of their own nitrogen, pulses require less fertilizer application, giving weeds even less fertilizer to feed on.

- 7. Keep the Weeds Guessing. "A diverse rotation is all part and parcel with an IWM system," says Brenzil, as weeds have plasticity that allows them to adapt. Brenzil adds that a common misconception about weed adaptation or resistance is that it only happens with herbicides, but it can also happen with tillage, and a variety of other management practices if applied repeatedly.
- 8. Spray Weeds When Needed. To integrate a weed control system completely, growers should include strategic herbicide use with these other practices, Brenzil says. Scouting before and after spraying is important to ensure the weed problem is properly gauged, and the product performs the way it should. Proper coverage is also key, and scouting will catch spray misses before weeds reproduce in your field. If weeds are not at economically significant levels, skip the spray for that year in one of the competitive crops in your rotation.

Growers should be aware of herbicide residues and cropping restrictions. For example, Dow AgroSciences recently changed the recropping restrictions on Curtail M, which will help pulse growers manage weeds before the pulse crop year. Farmers can now use Curtail M in wheat, barley and oat crops in 2002, and safely follow up with peas the next year. Research is still ongoing for other pulse crops. Brenzil says control prior to seeding pulses is especially important with perennials, because there are no controls availa-

ble in-crop. In general, he suggests that in the previous year, if there are more thistles, control them pre-harvest; with more dandelions, spray post-harvest.

In-crop, early removal of weeds is critical to maintaining the yield potential of pulse crops. In a study by Neil Harker and several other research scientists at the Lacombe Research Centre in Alberta, they found that controlling weeds more than two weeks after pea emergence will often be too late to achieve maximum yield potential because yield loss has already occurred.

Though these IWM techniques mean taking a little extra care every year, using them will benefit much more than just your pulse crop. They reduce the severity of weed infestations, can prevent weeds from reaching critical levels, and make herbicide applications more effective when weeds do reach the point of requiring control. They will make you not only a better pulse producer, but a better steward of all your crops.

For more information, see the 2002 Crop Protection Guide at www.agr.gov.sk.ca/docs/crops/cropguide00.asp or click on "crops" and "integrated pest management" at www.agr.gov.sk.ca.≯

8 Steps to Integrated Weed Management

- 1. Quality Seed of a Competitive Variety
- 2. Clean Seed
- 3. Clean Equipment
- 4. Enough Seed
- 5. Seed Only to Moisture
- 6. Feed Only Your Crop
- 7. Keep the Weeds Guessing
- 8. Spray Weeds When Needed

F PROTECTING PULSES

by Delanev M. Ross

🔆 in brief

Ascochyta in chickpeas is the biggest threat for next year, and there are some new recommendations for management.

Protecting Your PUISE

On the Web

For more information, see http://paridss.usask.ca/ specialcrop/pulse_diseases, and www.saskpulse.com/ pulsedays.

Pulse crops are unlike most

other crops grown in Western Canada. More than most other crops, pulse crops are visually scrutinized for their consistency in size, shape, and colour, which means diseases like ascochyta that can stain the seed are even more important to avoid, on top of the potential for yield losses.

In the coming year, ascochyta blight in chickpeas is expected to be the most serious threat that pulse producers will face. Losses can be severe, and to date, only partially resistant varieties are available to farmers. Until more resistant varieties are available for ascochyta control, growers have to be the experts when it comes to protecting their crops. Before you can fight the disease, you first have to understand ascochyta.

Know Your Enemy

The fungus that causes ascochyta blight in chickpeas, *Ascochyta rabiei*, is spread primarily by rain, and to a lesser extent by wind. Spores of the fungus can come from seeds, infected plants, or overwintering trash. With sufficient leaf moisture, the spores germinate, infecting the leaf. It takes five to 10 days for symptoms to develop from the time the spore lands on the leaf.

According to Penny Pearse, Provincial Plant Disease Specialist with Saskatchewan Agriculture and Food, symptoms begin as small round or oval brown spots that, with humidity, will quickly enlarge on leaves, stems, and pods, eventually resulting in leaf death and stem breakage. These disease lesions are typically tan in colour with a darker brown margin, and may have dark, pinhead-sized spore-containing structures called pycnidia in the centre.

In the field, severe infection is manifested as spreading circular patches of dead and dying plants. Pod fill on severely infected plants is reduced or may be completely halted. Infected seed may be shrivelled, spotted or discoloured. Ascochyta can spread quickly if left uncontrolled, producing numerous generations of spores over the growing season. Applying a fungicide at this early stage in disease development is critical, particularly when conditions are wet, or rain or dew are anticipated. However, even when a fungicide is applied, the lesions remain and can reduce yield. Thus, prevention is crucial to minimizing the damage caused by ascochyta.

Use Everything You've Got

In pulse crops, the cost of disease infection is high, so growers need to do everything they can to avoid it. Sabine Banniza, Pulse Pathologist at the Crop Development Centre at the University of Saskatchewan, suggests a number of tools pulse growers can use to reduce the risk of ascochyta infection, and these tools translate into good management practices for any crop and disease.

- 1. Choose less susceptible chickpea types. Banniza suggests that desi types tend to be more resistant than kabuli types, and that fern leaf type kabulis tend to be more resistant than unifoliate leaf types.
- 2. Choose less susceptible varieties. While there are no completely resistant varieties of chickpeas, there are still some varieties that are less susceptible than others. About the best resistance rating available now is "fair", which is by no means disease free, but does slow the development of ascochyta compared to "poor" and "very poor" rated varieties. Among
 - specific varieties, Banniza suggests that Myles, CDC Yuma, and B90 chickpeas are less susceptible than Sanford, Dwelley, and Evans, with B90 being the least susceptible of all these varieties. She warns, however, that even the less susceptible varieties must be scouted and sprayed at the first sign of symptoms.
- **3. Use disease-free, quality seed.** Banniza suggests disease levels close to 0 per cent





Ascochyta blight on chickpeas (above) not only reduces yield, but stains the seed, resulting in quality losses. When scouting for ascochyta blight, look for the dark stem lesions and dead leaves (left, right). In severe cases, circular patches of dead and dying plants will stand out in the field.



based on tests at an accredited lab. Less than 0.3 per cent has been recommended by Saskatchewan Crop Insurance.

- 4. Use a registered seed treatment. Transmission of ascochyta from seed to seedling is high in chickpeas, so clean seed plus a seed treatment will help keep the disease from getting an early start in the field. Crown seed treatment is now registered for chickpea.
- **5. Use good agronomy.** Proper agronomic practices will help plants fight stress, from environment as well as disease. Banniza says chickpeas should only be grown in the brown and dark brown soil zones in Saskatchewan. Be sure to follow the recommended seeding rates, depth and timing for the chickpea variety you choose, provide adequate fertilization and good weed control, and avoid herbicide injury.
- **6. Use a proper rotation.** Crop rotation is critical for keeping disease levels from building up in the field. Planting chickpeas once in four years is the current recommendation, but Banniza reminds growers to think not only of the field itself, but what is next door. Planting chickpeas next to a field that was

infected the previous year increases the risk of disease. If this is unavoidable, start scouting on that side of the field.

Scouting is Key

All of these management practices will help slow the disease, but chances are good that ascochyta will still get into your chickpea field. Proper scouting and prompt fungicide treatments are key to keeping this disease under control.

Some new information on ascochyta management in chickpeas has come up recently, changing the recommendations that growers should follow. At Pulse Days 2002, Banniza told growers that in the past two years, the first symptoms of ascochyta blight have started appearing earlier on chickpea plants – as early as the beginning of June. **This change means scouting must now begin at the seedling stage, well before the previous recommendation to commence at flowering.**

It can help to prioritize scouting, too. Pearse recommends scouting first in the fields most at risk, such as land where chickpeas have been grown in the past two years, or crops located next to infected chickpea residue from the previous year. Within those fields, Pearse recommends starting in problem spots such as low-lying areas, the field edge closest to last year's chickpea residue, or more densely planted areas. In addition, Banniza recommends that while growers should concentrate in these high risk areas, they should still scout throughout the field, because the margins alone will not give the whole picture.

"Out Damned Spot"

If small brown spots symptomatic of ascochyta blight are detected in the field, apply a fungicide immediately. According to Banniza, Bravo 500 is the only foliar fungicide registered

Planting chickpeas next to a field that was infected the previous year increases the risk of disease.

for chickpeas at present, and up to three applications may be made with this fungicide. She adds that registration

requests for Quadris and Headline have been submitted to the Pest Management Regulatory Agency and decisions are expected this spring. At press time, however, these products were not yet registered, and any use prior to formal registration would be illegal.

With the possible availability of Quadris and Headline for ascochyta blight control, resistance development is a particular concern. The two fungicides have the same single mode of action in the fungus, which is why they are at risk for resistance development. Also, since both products belong to the same family of fungicides (called strobilurins) and cross-resistance groups, if the fungus develops resistance to one fungicide, it will also be resistant to the other (cross-resistance). If these products are registered, a maximum of two applications will be allowed per crop and per year for both products. This means a single application of each, or two applications of either Quadris or Headline, but not both. Growers will have to properly rotate and use these fungicides, and recommendations are currently being developed.

Never-Ending Pest Quest

There is no question that ascochyta blight will be the biggest threat to producers this season, but remember that there are other pests just waiting to take advantage of your crop when you're not looking. Pearse has a few points on where you should keep your guard up.

Anthracnose on lentils. Lentil growers in

the southeast region of Saskatchewan should be on the lookout for anthracnose symptoms in their fields. Southeast Saskatchewan was the exception to last year's dry conditions, as it received rainfall and warm temperatures in late July that favoured the development of anthracnose. In some of these lentil fields, this disease spread quickly and resulted in yield loss. Anthracnose inoculum is primarily spread during harvest, in the dust during combining.

White and grey mold of lentils. In the same fields where anthracnose occurred, sclerotinia white mold and botrytis grey mold may also have been favoured. If moist conditions occur in 2002, lentil growers in the southeast region of Saskatchewan should once again be on the lookout for white and grey mold.



If 2002 has the same warm dry days, cool nights, and dewy mornings that occurred in 2001, growers may see a lot of powdery mildew in their pea fields (above).

Powdery mildew of field pea. Powdery mildew development is hastened by warm dry conditions during the day and cool night temperatures, which often leads to dew in the morning. In 2001, powdery mildew was first observed in east-central Saskatchewan as early as the preflower stage. If Saskatchewan receives similar conditions in 2002, powdery mildew will be a disease to watch for. Some practices to manage the impact of powdery mildew are to seed early, choose resistant varieties, and if symptoms appear early in the season, a fungicide application may be warranted.

Protecting your pulses is a tough job, but using preventative steps and smart scouting will help control diseases while optimizing your efforts. They might even make it easier for you to produce some of the world's top pulse crops.¥ by Delaney M. Ross

Taking the Seed Test

Seed labs have been busy

conducting seed tests, and the data collected for 2001 will soon be published in the Canadian Plant Disease Survey. *Pulse Point* has obtained the data for lentils, chickpeas, and peas in Saskatchewan, and has summarized those results to give an idea of how Saskatchewan pulse crops were affected by diseases like ascochyta and botrytis in the past season.

The 2001 seed testing information for lentils, chickpeas, and peas was compiled by Robin Morrall, retired professor from the University of Saskatchewan, using the results of seed tests from four commercial companies. Morrall notes that averages with less than 10 samples are considered less reliable, so only the results from the more reliable averages are featured in this summary.

Of the 881 lentil samples taken from across the province in 2001 and tested for ascochyta, the average infection level was 0.6%, with 69% of these samples showing no trace of ascochyta. The results for 2001 were lower than in 2000, when the provincial average was 2.5% infection, and 34% of lentil samples had no detectable levels of ascochyta. As well, the number of samples taken in 2001 was reduced from the 1,179 samples taken in 2000. Districts 2A and 3BS were among the most affected areas in 2001 (See table).

Of the 824 lentil samples tested for botrytis in Saskatchewan in 2001, the average infection level was 0.4%, with 63% of the samples showing no detectable level of botrytis. Again, the average was lower than in 2000, when the average was measured at 2.3% infection, and only 20% of samples had no detectable level of botrytis. In 2001, lentil samples from District 2A were prone to higher botrytis levels, as well as higher ascochyta levels.

In chickpeas, 1,145 samples of kabuli-type, and 242 samples of desi-type, were tested for ascochyta in Saskatchewan. The 2001 provincial average of ascochyta infection for kabuli samples was 0.9%, with 38% of samples showing no detectable level of ascochyta. The infection levels appeared lower in kabuli chickpeas in 2001 compared to 2000, when the average

🔆 in Brief

- The seed testing information for pulses is provided by: *Discovery Seed Labs *Priority Lab Services
- ¥Saskatchewan
 Wheat Pool
 ¥Lendon Seeds

Lendon Seeds

Samples were tested from August to mid-December of 2001 by crop district in Saskatchewan.

In 2001, chickpea, lentil, and pea seed samples from Saskatchewan all had lower levels of ascochyta and botrytis infection compared to 2000. As well, more samples had no trace of ascochyta and botrytis in 2001 than in 2000.



Сгор Туре	Crop District	Average % Infection per Sample	% Samples With 0% Ascochyta	# Samples Tested
Lentil	2A	1.5	55	64
Lentil	3BS	3.9	39	44
Kabuli Chickpea	3AN	1.8	24	83
Kabuli Chickpea	3AS	1.1	26	131
Kabuli Chickpea	4B	1.1	30	83
Kabuli Chickpea	6A	1.0	33	35
Kabuli Chickpea	6B	2.1	37	54
Desi Chickpea	3AN	1.3	33	15
Desi Chickpea	3AS	1.6	18	30
Desi Chickpea	3BN	1.0	44	45
Pea	3AS	2.6	27	54
Pea	5B	1.0	58	40
Pea	8A	1.9	23	58

Crop districts in 2001 with higher ascochyta levels detected in seed tests.

Crop districts in 2001 with higher botrytis levels detected in seed tests.

Сгор Туре	Crop District	Average % Infection per Sample	% Samples With 0% Botrytis	# Samples Tested
Lentil	3BS	3.9	39	44
Lentil	2A	2.0	12	59
Lentil	2B	0.7	39	188
Kabuli Chickpea				None
Desi Chickpea				None
Реа				None

Crop Districts of Saskatchewan



infection level was 2.3%, and only 27% of samples showed no trace of ascochyta.

For desi samples, the 2001 provincial average infection level was 0.8%, with 46% of the samples showing no detectable level of ascochyta. The 2001 results for desi chickpeas also appeared slightly lower in 2001 compared to 2000, when average infection levels reached 1.5% and 41% of samples had no detectable level of ascochyta. Districts that were among the highest for ascochyta in 2001 were 3AN, 3AS, 4B, 6A, and 6B for kabuli-type, and 3AS, 3BN, and 3BN for desi-type.

Botrytis tests in 2001 chickpea samples showed that of the 824 samples of kabuli-type tested, the average infection level was less than 0.1%, with 89% of samples showing no detectable level of botrytis. Of the 170 desi samples tested, the average infection level was 0.1%, and 87% of samples had no trace of botrytis. No districts stood out as being particularly high for botrytis in either type of chickpea in the 2001 samples.

Botrytis levels in both kabuli and desi chickpeas were notably lower in 2001 than in 2000. Kabuli chickpea samples in 2000 had an average botrytis infection level of 1.7% with 52% of samples showing no detectable level of botrytis, and 2000 desi samples averaged 2.5% botrytis infection, with only 28% of samples showing no trace of botrytis.

For peas, the 2001 provincial average for ascochyta infection was 0.9%, with 61% of the 553 samples showing no trace of ascochyta. The results for 2001 were lower than in 2000, when the provincial average for ascochyta in pea samples was 3.1%, and 24% of samples had no detectable level of ascochyta. In 2001, Districts 3AS, 5B, and 8A generally tested highest for ascochyta in peas.

For botrytis in peas, the 2001 provincial average was less than 0.1% infection, and 93% of the 348 pea samples had no detectable level of botrytis. The infection levels in 2001 for botrytis were also lower than in 2000, when the average botrytis level was 0.3% infection with 72% of samples showing no trace of botrytis. There were no districts in 2001 that were particularly high for botrytis levels in peas.

The complete disease survey will be published this spring, available under Reports at http://res2.agr.ca/London/PMRC.

For more information on managing disease risk, see the "Guidelines for Safe Levels of Infected Pulse Seed for Planting" in January's *Pulse Point.*≯

by Delaney M. Ross

Watch for Hoppers

The 2002 Grasshopper Forecast

for Saskatchewan shows that grasshopper populations are definitely on the increase in Saskatchewan. Scott Hartley, Insect Control Specialist with Saskatchewan Agriculture and Food (SAF), says, "The 'light' category, which is four to eight grasshoppers per square metre, encompasses a much greater area of the province than seen in the past few forecasts. This category is based on the risk to cereals, but far exceeds the economic threshold for lentils."

"For the past few years, there was no 'very severe' category, which indicates more than 24 adult grasshoppers per square metre, but the distinction has returned for the 2002 forecast: areas of very severe infestations are now found in the southwest region of the province. The areas of 'severe' infestations, 12 to 24 grasshoppers per square metre, have also increased in the southwest," says Hartley.

In general, Hartley says, the severity of the infestations in 2002 will depend primarily on weather factors during the 2002 crop year. A warm, dry spring will result in higher densities, while continual moist, cool weather will hinder development.

The point at which the implementation of chemical control is financially worthwhile – the economic threshold – can vary with the value of the crop, the area affected, and the type and stage of the crop. Chemical control is generally recommended in cereal crops when population densities reach eight to 12 grasshoppers per square metre; however, significant damage can occur in lentils when pod formation commences and an average of two grasshoppers per square metre is present.

Specific recommendations for managing grasshoppers in pulse crops can be found in the Guide to Crop Protection. The 2002 Guide suggests that growers scout along the crop edges from May through July. Grasshopper damage appears as black strips along the edges of emerging crops, and later in the season may include clipped heads. In the field, estimate

On the Web

The 2002 Grasshopper Infestation Forecast and accompanying map can be found on SAF's web site at www.agr.gov.sk.ca/crops/ integrated_pest_management.asp. Click on Insects, then 2002 Grasshopper Forecast.

the number of grasshoppers per square metre, and use the economic threshold to determine the need for chemical control (two grasshoppers per square metre for lentils, eight to 12 per square metre for most other crops).

Products recommended for grass-

hopper control in the 2002 Guide to Crop Protection are only registered for lentils and beans. There are no registered products listed for grasshopper control in peas and chickpeas. In lentils, recommended products include:

- ≯ Decis 5EC 0.04 to 0.06 L/ac by ground, or 0.06 L/ac by air;
- ✤ Decis 5F 0.032 to 0.048 L/ac by ground, or 0.048 L/ac by air;
- \neq Malathion 500 0.68 L/ac;
- ✗ Malathion 500E/Fyfanon 0.69 L/ac;
- ≯ Lorsban/Nufos/Pyrinex 0.235 to 0.486 L/ac.

In beans, recommendations for control include:

- \neq ECObait 0.8 to 1.6 kg/ac;
- ≯ Lagon 0.28 to 0.36 L/ac.

However, always check the guide and the product label for details on application methods and rates before applying.¥

🔆 in Brief

The 2002 Grasshopper Forecast for Saskatchewan warns that these pests may be a problem for pulse growers next season.



🔆 THANKS

A special thanks to our Platinum Sponsors for their generous support at Pulse Days.

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Participants were pulse-ating

at Pulse Days 2002, held in Saskatoon on January 7 and 8. No one could deny the enthusiasm at the conference where an overwhelming number of growers – 1,547 attendees and 297 webcast viewers to be exact – gathered to hear about the latest developments in the pulse industry.

Organized by the Saskatchewan Pulse Growers (SPG), the conference featured an impressive lineup of speakers. Topics provided insight into issues facing the industry and left participants with some practical advice to take back to their farms. "You always learn something and the first speaker (David Kohl) was great! If we could do everything he said, we would be doing very well," said Arnold Hegleson, a chickpea and lentil grower who has been coming to the conference for years.

Pulse Research Poster Session

The Pulse Research Poster Session, held during the conference's Wine and Cheese Reception, provided yet another opportunity for growers to meet with speakers, researchers, and industry resource people.



Parthiba Balasubramanian (left) and Manjula Bandera talk about Balasubramanian's poster, *How Early Can You Seed Dry Bean*? (See the Research and Extension story in this issue for more detail.)



Shawn Buhr, Vice-Chairman of SPG; Tom Warkentin, CDC; Sabine Banniza, CDC; and Holly Rask, Pulse Canada Research, discuss the latest developments in pulse research (left to right).



Attendees Shawn Hermanson, Mark Mitchell, Steve Wiens, and Kevin Baumann talk pulses at Prairieland Exhibition (left to right).



Don Pulfer, Bobbie Bratrud, Jim Watts, and Roger Clay (left to right), taking time to mingle with the youngest conference attendee, Faith Bratrud (middle).

🖗 **pulse days** 🖗



Conference volunteers Barbara Cox-Lloyd (left) and Mary Orr keep things moving at the registration desk.



Tim Coulter, Dean Corbett and Parthiba Balasubramanian (left to right). Coulter presents Balasubramanian with the Don Jacques Memorial Scholarship.



Shannon Chant (right) receives the Pulse Research Poster Session Student Award from SPG Director Dean Corbett.

Saskatchewan Pulse Growers Awards Ceremony

SPG Director Dean Corbett was host to the Saskatchewan Pulse Growers Awards Ceremony held on Tuesday, where three noteworthy individuals received awards: *BASF Pulse Promoter Award – Greg Simpson

- [★]Don Jacques Memorial Scholarship Parthiba Balasubramanian
- ≯ Pulse Research Poster Session Student Award – Shannon Chant

The SPG also announced its new capital campaign to develop a new pulse field lab. Liphatech provided the first corporate donation of \$15,000 towards SPG's fundraising efforts. The donation is the first part of a five-year \$75,000 commitment (see inside front cover for more information).

2002 Board of Directors

Pulse Days was also host to the SPG's Annual General Meeting where the 2002 Board of Directors was announced. The SPG Board is comprised of seven pulse farmers (*see page 16*), all of whom have been elected by registered Saskatchewan pulse growers. Directors serve three-year terms, with a maximum of two terms. Interest in this year's election was brisk, with 2,289 ballots returned. SPG would like to thank all candidates who showed their interest by allowing their names to stand.

The Pulse Pantry Session

Over 60 people were wined and dined by Chef Peter Fogarty who shared delicious new pulse recipes at the ever-so-popular Pulse Pantry Session.



Chef Peter Fogarty prepares Saskatchewan pulses.

Next Year

If you're looking to attend Pulse Days January 6-7 next year, you'd better book early! You'll be competing for rooms with Skate Canada, which will be taking place in Saskatoon during Crop Production Week, January 6-12, 2003. So if you don't want someone skating circles around you, reserve your room now!

BOARD

The 2002 Board of Directors was announced at SPG's Annual **General Meeting** during Pulse Days 2002.

The 2002 Directors are:

- ¥Glenn Annand, Mossbank Chairman ≯ Shawn Buhr, Lucky Lake – Vice-Chairman (re-elected)
- ∛Germain Dauk, Naicam
- ¥Ron Hundeby, Elbow
- ⊁Don Meier, Star City
- ≯Dean Corbett, Macrorie

≯ Jim Moen, Cabri (newly elected) Together with Executive Director Garth Patterson, Glenn Annand and Shawn Buhr will form the Executive.



Committee Responsibilities:

- ¥ Extension and Communications Dean Corbett (Chair) and Jim Moen
- ✤Domestic Market Development Ron Hundeby (Chair), Dean Corbett, Germain Dauk
- ≯ Transportation Glenn Annand (Chair), Dean Corbett
- ¥ Variety Release Don Meier (Chair), Ron Hundeby

Germain Dauk and Don Meier will represent SPG on the Pulse Canada board and Shawn Buhr and Jim Moen are the delegates to the Pulse Canada Research Committee.

Top (left to right): Don Meier, Ron Hundeby, **Germaine Dauk, Shawn** Buhr. Bottom (left to right): Jim Moen, Glenn Annand, Dean Corbett.

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The results are in from the 2002 Pulse Days Survey! Over 500 Saskatchewan pulse growers participated in the survey and the following highlights some of the responses about our new magazine, Pulse Point.

Editorial	Responses
Which is most important to you?	
Articles researched by consulting a number of sources	271 / 52%
Articles written by a specialist	239 / 46%
Both	10 / 2%
Which is most important to you?	
Articles that provide agronomic information	297 / 59%
Articles that provide big picture information	190 / 37%

Advertising and Revenue

Responses

Magazine advertisements are a useful way to learn about products and services offered to the pulse industry?

Strongly Agree Agree Neutral Disagree Strongly Disagree

Both

81 / 16%

210 / 40% 📕 185 / 35% 37 / 7% 10 / 2%

19 / 4%

Magazine advertisements are an appropriate way to raise funds for SPG activities?

Strongly Agree	114 / 22%
Agree	204 / 39% 🗖
Neutral	155 / 30% 📃
Disagree	37 / 7% 🗖
Strongly Disagree	10 / 2%

The SPG Board should sell the producer levy list to market research companies.

Strongly Agree	38	/ 7%
Agree	65	/ 13%
Neutral	167	/ 33%
Disagree	84	/ 16%
Strongly Disagree	159	/ 31%



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NEW VARIETIES

by Hans Ongsansoy and Delaney M. Ross

IN BRIEF

The CDC could potentially release four new pulse varieties in 2002, pending registration.

Variety data provided by the Crop Development Centre.

Something's Always Cooking at the CDC

The Crop Development Centre

in Saskatoon is at the forefront of new pulse variety development in Western Canada. For each new variety, the CDC's team of researchers tries to develop a plant that meets specific breeding objectives - chief among these are improved yield and better disease resistance. However, the Centre's biggest asset may be its scientists' desire to breed plants that are accepted not just on the Prairies, but anywhere in the world.

"Meeting different preferences in the world is like juggling a mosaic. It is difficult at times," says Bert Vandenberg, pulse crop breeder with the CDC. "We don't take the fast-food approach of 'we can't take the pickles off.' We take the approach of providing what the end-user wants."

With that, here is a look at the four new pulse varieties (one pea, two lentils, and one chickpea) the CDC could potentially release this year.

Peas

CDC 0001 is the only pea variety, so far, that is slated for release this year to select seed growers. It is a medium-size green pea with good quality traits - it's round and smooth, with good colour and bleaching resistance. The variety also boasts good lodging resistance.

Two pea varieties slated for future release



The green pea variety CDC 0001 improves on its

predecessors, with earlier maturity than CDC Verdi (left) and a higher seed weight than CDC Montero (right).

Agronomic Comments: Good lodging resistance

Market Comments: Smooth, round seed shape with good green colour. Bleach resistance. *Relative maturity rating compared to Alfetta

include CDC 0009, a yellow pea with improved yield and lodging resistance, and SB2000-2, a yellow pea developed jointly by the CDC and Alberta Agriculture, Food and Rural Development. SB2000-2 is powdery mildew resistant, moderately resistant to lodging, and has a seed size similar to CDC Mozart. Both varieties are anticipated to be ready for release to select seed growers in 2003.

Tom Warkentin, pea breeding team leader at the CDC, says there are very specific goals in mind when breeding for peas. "Higher yields, of course, but every breeder will tell you that," he says. "However, growers view peas as pulse crops that have to be higher yielding because they are almost always a lower price. So that becomes our overall theme - breed high-yielding, low-input pea varieties."

Chickpeas

CDC ChiChi is a medium-large kabuli chickpea with fern leaf type and medium time to maturity, as well as improved ascochyta resistance and greater yield. It is the only chickpea variety slated for release to select seed growers from the CDC this year.

The primary focus of chickpea breeding is controlling ascochyta. Resistance ratings for most varieties range from very poor to poor and fair. "We can see there's work to do," says Warkentin. "It's a worldwide problem, though not severe everywhere. India does not consider ascochyta a key disease, because in their season there are dry conditions at the time of flowering, so the disease is not a problem. But in Canada, Australia, the U.S., parts of the Indian subcontinent and the Middle East, the problem persists."

This is because it is difficult to track down chickpea germplasm sources that have high levels of resistance. Warkentin says the CDC does access germplasm from around the world however, and is working closely with the International Centre for Agricultural Research in the Dry Areas (ICARDA) in Syria, where they're testing under high disease severity. "(Increasing resistance) is an ongoing objective," says Warkentin.

Pea

Variety: CDC 0001

1, 2 & South 3 - approx. 94

North 3 & 4 - approx. 94

Seed Weight (g/1000): 240

Powdery Mildew Resistance: Poor

Leaf Type: Semi-leafless

Maturity*: Medium

Type: Green Yield % Alfetta

×<mark>new varieties</mark> ×



Kabuli chickpea

Variety: CDC ChiChi (92060-11) Type: Kabuli Leaf Type: Fern Yield % Sanford Area 1 – 122 Area 2 – 117 Maturity: Medium Seed Weight (g/1000): 390 Ascochyta Blight Ratings: Poor Agronomic Comments: Good yield

Market Comments: 8-mm seed size. Whiter seed coat than checks.

Other chickpea breeding goals include earlier maturity and better visual quality. The CDC is also doing a bit of work on the efficiency of splitting to meet market demands. For example, when sold to India, most Canadian chickpeas are dehulled and split.

Lentils

The CDC actually has two lentil varieties potentially on tap for 2002. The first is CDC 964a-4, which is a late-maturing large green lentil. It boasts consistently high yields and good ascochyta resistance. The other is CDC 983-87, a French green lentil with a dark marbled seed coat. CDC 983-87 features an appearance and size similar to other French green varieties, but with better ascochyta ratings and better height.

According to Vandenberg, there is a big push towards improving ascochyta resistance in lentils, as the disease not only affects production, but also the crop's appearance, which can become stained. Anthracnose is another concern. Researchers have discovered there are actually two different strains of the disease across the Prairies, with most lentil varieties showing good resistance to one, but not standing up to the other.

Besides disease resistance, Vandenberg also tries to breed lentils that are plumper and more rounded along their edges, to lessen the chances of them chipping during handling. In the future, he hopes to improve the nutrient traits in lentils – for example, upping the iron and/or folic acid content in the seed.

Beans

Although the CDC has no bean varieties slated for release to select seed growers this year, Vandenberg says there are four varieties that may come in under the wire for recommendation for registration in 2002 – one pink, one black and two pintos. The pintos are the first to follow CDC Pintium, with both featuring very good pod clearance and yield potential. One is a little more drought tolerant though, while the other is a little fastermaturing.

Perhaps the biggest factor determining whether any of the varieties are released, however, is how well they stand up to canning. As of press time, Vandenberg was still waiting for those results, which he expected in February. Some of the questions he's hoping the tests will answer include: How do they soak? What is their colour after soaking? And what is their texture and colour after canning?

"We're testing to see if these things are in the range of acceptability," says Vandenberg.

Future General Goals

As for the future, Vandenberg feels there will be two main objectives for developing new varieties at the Centre. One is trying to anticipate what the next big disease issue might be. The other is revisiting the agronomy of pulse production, in order to develop varieties that will give farmers the option to change growing practices to suit a system, and manipulate pulse quality. Vandenberg expects someday farmers will know how to produce better colour by changing seeding date to mature the crop during cooler nights, for example.

"People are going to learn how to tie in agronomy and quality," says Vandenberg. As usual, new varieties from the CDC will likely have a big role to play in that.¥



With higher yields and earlier maturity than the popular CDC Glamis variety (above), CDC 964a-4 shows potential in the large green lentil market.

Lentil

Variety: CDC 964a-4 Type: Large green Seed Coat Colour: Green Yield % Laird Areas 1-2 - 130 Areas 3-4 - 118 Maturity: Late Seed Weight* (g/1000): 64 Resistance to Ascochyta: Good Resistance to Anthracnose: Poor Agronomic Comments: Consistent high yields. Earlier than CDC Glamis and CDC Grandora. Market Comments: Between CDC Glamis and CDC Grandora in size. Good ascochyta resistance. *Eston 33g/1000, CDC Richlea 51g/1000 Variety: CDC 983-87

Type: French green Seed Coat Colour: Dark marbled Yield % Laird Areas 1-2 - 118 Areas 3-4 - 114 Maturity: Early Seed Weight* (g/1000): 32 Resistance to Ascochyta: Fair Resistance to Anthracnose: Poor Agronomic Comments: Better ascochyta ratings and better height compared to French green. Some yield advantage. Market Comments: Appearance and size similar to French green.

RESEARCH

by Hans Ongsansoy

🔆 in brief

The Swift Current Research Centre provides recommendations that are relevant to Saskatchewan pulse farmers and their specific growing challenges.

"My recommendation is don't worry about nitrogen fertilizer at all for peas, lentils, and chickpeas."

Real Results

Every region of Canada has

its own unique set of growing conditions. Fortunately for Saskatchewan pulse producers working in the dry, brown soil environment of the province, a dedicated team of researchers is coming up with answers to their specific production questions.

The Semiarid Prairie Agriculture Research Centre in Swift Current is one of 19 federal research labs in Canada. Since 1994, the centre has been heavily involved in the development of agronomy management packages for alternative crops like peas, lentils and chickpeas.

With the 2002 seeding season right around the corner, Research Scientist Yantai Gan outlined some of the projects the Centre is working on – including studies on seeding date, seed size and inoculation – and provided rec-

ommendations that Saskatchewan pulse producers should find timely and valuable.

Seeding Date

For the past number of years, the Centre has been studying the effect of seeding date on yield for several types of crops. "I think seeding date is one of the simplest things, but is so important," says Gan. "For example, on a quarter-section of land, a farmer can make over \$3,000 more in returns by seeding peas earlier than mid-May. If he delays seeding to late May, the loss can be \$15,000. There are similar responses in desi chickpea and lentil. That's a huge jump in value (through boosted yields) just by looking at date of seeding," says Gan.

In terms of specific seeding windows, Gan says the ideal times for pulses are as follows: peas (last week of April to first week of May); lentils (first two weeks of May); desi chickpeas (mid-May); kabuli chickpeas (mid-May). "If a farmer has options for seeding these different pulses, that would be my recommended order," says Gan. "As soon as the ground is workable, you can seed pea, followed by lentil. For kabuli chickpeas you have to wait a little while, because with its larger seed size and thin seed coat, kabuli will have a more severe infestation of disease and fungus if you seed it too early. So plant it between May 10 and 20, when the soil temperature is around 10° C."

Kabuli Seed Size

Speaking of kabuli, the size of its seed, which is 10 times bigger than that of wheat, has led to another interesting study, one which poses the question: do smaller seeds produce the same yields as larger ones, thereby allowing farmers to save money through reducing seeding density?

"That's a project we've been looking at for the last three years. We wanted to find out if when a guy harvests his seed, he is able to sell the larger ones for a premium, and keep the smaller ones for planting on his farm," says Gan. "Surprisingly, we found there's

no difference between the larger kabuli seed and the smaller kabuli seed, in terms of growth and

"We found there's no difference between the larger kabuli seed and the smaller kabuli seed, in terms of growth and yield."

yield. This can be very cost-effective." However, results from a recent study by Discovery Seed Labs show smaller kabuli seeds can be more prone to ascochyta infection.

Gan explains further, using his calculations involving CDC Xena, a relatively larger kabuli seed. "For a target plant density of 40 plants per square metre, or 4 plants per square foot, you need almost 200 lbs per acre of the seed when dealing with the greater-than-9-mm size. And if you sell that, you have a premium," says Gan. "Now if you use seed smaller than 9 mm, but larger than 8 mm, you're only going to need 150 lbs per acre. That's a 50 lb per acre difference. According to current seed prices, you save almost \$25 per acre. Imagine if a farmer has 1,000 acres of chickpeas. It's a huge savings." Gan cautions to always use disease-free seed, regardless of the size of the seed.

Inoculation Findings

In the area of pulse inoculation, there are a lot of variables farmers must consider. Through a series of studies, Gan and his fellow researchers have come up with valuable recommendations that answer which of the following are better: granular or powder inoculant, seed-row or side-band application, and phosphate or nitrogen fertilizer.

First up, however, is proving that inoculation is even needed on pulses. It is necessary, confirms Gan, who reports that if you miss applying rhizobium inoculant on desi chickpeas, you run the risk of reducing yields anywhere from 12 to 51 per cent! The results for kabuli chickpeas are less drastic, as fluctuations in yield ranged from 2 per cent to 23 per cent. Finally, on non-inoculated lentils, there were yield reductions from 19 per cent to 62 per cent – for an average of 23 per cent.

Turning to which type of inoculant is better, Gan says the results are not consistent from year to year. However, from the data he has, Gan says granular inoculants do produce higher yields than peat-based powder inoculants. On average, desi chickpea yields increased by 7 per cent using granular inoculation, kabuli yields were 5 per cent better, and lentils had 6.5 per cent better yields.

When it comes to granular inoculant placement however – side-band versus seed-row – Gan says there is absolutely no difference in effectiveness. "So farmers can do whatever their capacity allows them to do. Go for seedrow, or go for sideband," he says.

Finally, Gan has some useful information regarding nitrogen and phosphate fertilizer. "Nitrogen fertilizer is not needed," reveals Gan, "because pulses don't show a consistent yield response. In most cases, nitrogen enhances vegetative growth earlier in the growth stages, but does not translate into final seed yield. So my recommendation is don't worry about nitrogen fertilizer at all for peas, lentils, and chickpeas. They will fix nitrogen by themselves, given the condition that you use a real good inoculant."

Phosphate fertilizer is a little different. "There is not much yield difference, but phosphate does seem to affect the size of the kabuli chickpea seed, which can lead to premiums," says Gan. However, Gan has not calculated the difference in gained premiums versus



additional phosphate fertilizer input costs. But there is also another benefit. "If the soil is low in phosphate, the nitrogen fixation process could be harmed," says Gan. "So we're recommending 15 to 20 lbs per acre for lentil, desi, and kabuli as the ideal amount of phosphate fertilizer to apply."

Gan says the Centre is always working on pulse-related studies. Some of these include better weed control packages, the possible creation of a herbicide-free chickpea production system, and determining the most effective cereal/pulse/oilseed crop sequences. Gan adds the results are always available to the public, either through reports to funding agencies and government offices, postings on the web sites of Saskatchewan Agriculture and Food and Saskatchewan Pulse Growers, or presentations at various farmer meetings. Some farmers even call the Centre directly, and ask questions over the phone. Gan doesn't need any more proof than this that the information is valued. "Pulses are a hot crop, and I can see so many benefits of doing these studies," he says, "for the producers, as well as society as a whole."≯ Research Scientist Yantai Gan's work in the lab benefits farmers in the field. ON POINT

For more information about SPG activities please call: (306) 668-5556, e-mail: pulse@saskpulse.com, or visit our web site: www.saskpulse.com.

🔆 in Brief

News from and about Saskatchewan Pulse Growers (SPG).



Growers is pleased to welcome Jim Moen of Cabri, Saskatchewan, to its 2002 Board of Directors. Moen and his wife Nancy grow a variety of pedigreed and commercial pulse crops on their 4,000 acre farm. A professional agrologist, Moen expects to contribute to the Board in a variety of ways, including the dissemination of information about profitable production prac-

Saskatchewan Pulse



Jim Moen, newest SPG Board Member.

tices to growers. He is also interested in research and development to improve genetics and agronomics, further development of markets and value-added industries for Saskatchewan pulses, and ensuring positive government policy regarding the pulse industry. Moen is active in his church and community and is Secretary of the Cabri Lions Club.

In late January and early February 2002, the Canadian Transportation Agency (CTA) heard a third complaint from Naber Seed and Grain Company against CN Rail. The company alleges that CN Rail breached its statutory service obligations between November 26, 2000 and April 21, 2001. Naber has been a vocal spokesperson for the pulse industry on the need for improved rail service for small shippers. The CTA is expected to issue a decision in March.

The Canadian Transportation Agency (CTA) has introduced a government-sponsored mediation program, designed as an alternative to formal adjudication. The initiative recognizes that all stakeholders in the transportation system – producers, shippers and carriers – incur high costs when resolving transportation disputes. A CTA mediator, working at no cost to the parties, helps explore issues and move towards a mutually beneficial settlement in a non-adversarial way. The process can be used to resolve issues related to rates, service obligations, competitive access, crossings, and noise, among others. Currently offered for rail and marine transportation disputes, it may be expanded to other modes in the future. If you have an issue that could be helped by mediation, or would like to learn more about the service, call the CTA at (888) 222-2592 or e-mail mediation.transpo@cta-otc.gc.ca.

Those interested in feed market development should mark May 9, 2002 on their calendar. A pre-conference symposium at the Eastern Nutrition Conference in Guelph, Ontario (May 9-10), will focus on pulse crops for livestock. This is a

key event for communicating with animal nutritionists and a chance to hear from a lineup of international speakers. For more information contact Barb Stefanyshyn-Coté at (306) 466-4645.



Establishing a pea breeding program is one important component of Pulse Canada's national research strategy.

A field pea breeding program, recently established by Agriculture and Agri-Food Canada (AAFC) and Alberta Agriculture, Food and Rural Development (AAFRD), is expected to further boost Canada's pulse industry. The immediate goal of the research program is to breed high-yielding, disease-resistant field pea cultivars suited to the cool, moist growing conditions found in parts of Western Canada. The program, which will receive more than \$400,000 in AAFC funding, will be housed at AAFC's Lacombe Research Centre. Pulse Canada, a strong supporter of this effort, has named variety development as one of its national research strategy components.



Work is underway to reconcile the House and Senate versions of the U.S. Farm Bill. The Senate version, which passed in February, includes peas, lentils, and chickpeas. SPG's Garth Patterson, Pulse Canada, and the Canadian ambassador to Washington have all expressed concern to various U.S. officials concerning the Bill. The House Agriculture Committee is hoping to have a final House-Senate bill for the 2002 crop year.

An expanded label on Crown for control of ascochyta blight in chickpeas was approved in February by the Pest Management Regulatory Agency.

Lyle Minogue of Lacadena was recognized for his outstanding commitment to SPG at the Annual General Meeting in January. First joining the Board in 1995, Minogue served on several committees and was Vice-Chairman and subsequently Chairman (2000 and 2001). As well, he served as Saskatchewan's representative to the Western Canada Pulse Growers for a time. Minogue was instrumental in establishing Pulse Canada, becoming the first Chair. As part of the tribute, he was presented with a retiring Director's pen.

Greg Simpson was announced as this year's recipient of the BASF Pulse Promoter Award at Pulse Days 2002. Each year, the Award is presented to an individual who has made an extraordinary contribution to the development of the pulse crop industry.

Simpson has made countless contributions to the provincial pulse industry over the past 20 years. He served as Vice-Chairman of the SPG Board from 1986 to 1988, and became Chairman in 1989. During this period he was the Saskatchewan representative on the Western Canada Pulse Growers and spearheaded domestic and international market development initiatives.

Born and raised on a nine-quarter mixed farm in the Moose Jaw area, Simpson completed the Vocational Agriculture Program at the University of Saskatchewan. While in school, Simpson grew the first pea crop ever produced in the Moose Jaw area. His later work as an inspector for Agriculture and Agri-Food Canada introduced him to the benefits of pedigreed The Canadian Canola Growers Association will be responsible for administering the 2002 Spring Credit Advance Program for pulse crops in Saskatchewan. Growers can contact (866) 745-2256 for more information. Inquiries on all previous cash advances (fall 2001 and earlier) should be directed to the Manitoba Corn Growers at (877) 598-5685. Check the SPG web site at www.saskpulse.com/cash for more information.

Canadian agricultural producers who contribute funds for scientific research and experimental development through agricultural organizations will now receive an investment tax credit. The Scientific Research and Experimental Development (SR&ED) Program, an initiative of Canada Customs and Revenue Agency and Agriculture and Agri-Food Canada, will increase credits available to producers who contribute to SR&ED through check-offs, assessments or levies to finance research and development. In order to qualify, agricultural organizations will have to act as agents for farm producers in all matters relating to the SR&ED Program. SPG will be receiving more information on the process in the coming months - so stay tuned!



Upon acceptance of his award from Rick Mitzel, BASF (left), Greg Simpson (right) also gave credit to his brothers.

seed, and led to the creation of Simpson Seeds Inc., a pedigreed seed and special crops processing company, which Simpson founded with his father and brothers. Working with his brothers at Simpson Seeds Inc., Simpson helps to promote Saskatchewan pulses around the world.

$\begin{array}{c} \textbf{RESEARCH AND EXTENSION} \\ \textcircled{}{\approx} & \textcircled{}{\approx} \\ \hline \end{array}$

P. Balasubramanian, A. Vandenberg and P. Hucl Department of Plant Sciences, University of Saskatchewan

How Early Can You Seed Dry Beans?

🔻 in brief

A University of Saskatchewan study shows that earlier seeding may be an option for dry bean growers in Saskatchewan.

Late May seeding of dry bean

on the Prairies, as is currently recommended to bean growers, ensures good stands, but decreases the number of frost-free growing days left for the crop to mature. Growers face the dilemma of deciding which option has greater risk: early seeding, which can result in poor stands and spring frost damage, or late seeding which can result in late maturity and fall frost damage. To effectively use the short growing season, early to mid-May seeding of bean is an alternative, provided seedling establishment is unaffected by cool wet soil and late spring frosts.

The University of Saskatchewan Department of Plant Sciences and the Crop Development Centre investigated the feasibility of changing the recommended late May seeding date for dry bean to mid-May by studying seedling stand, yield and frost damage at trials in Saskatoon. Five dry bean varieties (one pinto, two navy, two black) were seeded in mid-May and late May/early June in both 1999 and 2000.

In 1999, at 30 days after seeding, bean emergence was significantly lower for mid-May seeding compared to late May seeding (refer to Table). The first fall frost in 1999 was on September 13. Beans seeded in mid-May yielded double that of the late May seeding (3303 lb/acre compared to 1728 lb/acre), and had less frost-damaged seed (5 per cent compared to 40 per cent). In 2000, bean varieties for both mid-May and late May seeding dates matured before the first fall frost on September 23, so no difference in yield or frost-damaged seed was observed. The results also showed that bean germination is delayed when seedbed temperatures are cool, so seeding in mid-May will often result in crop emergence after the last spring frost.

Use of both early and late seeding dates for dry bean could enable farmers to benefit from mid-May seeding, and at the same time minimize the risk of seedling death from a late spring frost. This is a short-term risk management option.

In the long-term, other risk management options may become available through genetic improvement. First, frost resistance in seedlings has been identified in wild relatives of common bean, and research efforts are underway to transfer this frost resistance into dry bean varieties. This strategy will help reduce the frost risk associated with earlier seeding.

Second, we are trying to use standard plant breeding methods to improve tolerance to cold soils. Bean lines from northern Europe and high altitudes of the Sierra Madre and the Andes were evaluated for their ability to emerge under cool seedbed temperatures. The most promising lines were those with emergence scattered over 40 days from seeding, but with an earlier flowering maturity and good yield.

Incorporating frost tolerance and tolerance to emergence under cool soil conditions into locally adapted bean varieties could help reduce the production risks associated with early seeding.¥

Per cent bean emergence at 30 days after two seeding dates in 1999 and 2000.

Cultivar	1999 mid-May	1999 Late May	2000 mid-May	2000 Late May
AC Skipper	68	94	93	95
CDC Whistler	69	94	92	95
UI 906	77	97	76	90
CDC Nighthawk	83	96	94	94
Mean*	74b	95a	89b	94a

*Means followed by the same letter in each year are not significantly different at 0.05 level.



Do you have any ideas for this section? E-mail them to *Pulse Point*, c/o issues@issuesink.com, or fax them to (204) 475-5247. Let's get producers talking!

There were several experts on exports at this year's conference. Producers wanted to tap their expertise on how to compete in the global marketplace and understand the international buyer.

"Timeliness is of the essence in plans to make everything work. Christmas is always in December, but not the month of Ramadan, which is based on a lunar calendar and makes the month of fasting move back each year by 10 days. We're talking about getting those pulses shipped well in time for the fasting season." **Munir Ali**,

Asia Commodity Ltd., talking about what is needed for exporters to succeed in foreign markets. "It comes back to this haveto-have theory. People don't have to have large kabulis. If 9-mm kabulis are priced at \$600 a tonne, and 6-mm kabulis are priced at \$300 a tonne, the (Indian) housewife is going to think three times before she goes out and spends double the money just to have a bigger calibre. By the time you spice it up, and make it into a curry, and eat it with your bread, it's all going to taste pretty much the same." Pavan Talwar.

"I don't think it's as much to do with quality as it is with hype. The Americans like to do a lot of hype, you know how it is, but the Canadians don't do that." **Munir Ali**, Asia Commodity Ltd., answering why, in the minds of most Asian buyers, Canada is only considered the "number three" exporter of pulses in the world. 🔻 in brief

Speakers at Pulse Days 2002 fielded a number of questions from producers following their presentations. Here are some of the answers.

🔆 QUOTABLES 🔆

Pulses Etc., describing the role price plays in the buying habits of Indian consumers.

"May I point out to you that in Sweden, many farmers have co-operated to create craft centres out of deserted barns. In New Zealand, farmers have co-operated to create halfway houses out of their farm operations. When I lived on the farm in Blaine Lake, Saskatchewan, we retained our own machinery, but we also bought common machinery with our neighbours. When it came to cutting wood, or grinding grain, then we used the collective machinery. I have never heard a farmer say, at that time or now, that in any way did that amend, delude, or diminish the individuality of the farmer who came to work together at the time."

Norm Rebin, Active Connections Network, responding to an audience member who wondered how Saskatchewan farmers can work together if they are generally independent.

"Come on, this is Canada. I think they're (governments) talking the talk, but I don't think they're walking the walk."

Bert Vandenberg, Crop Development Centre, responding to a question concerning whether the government is doing its part in funding pulse research.

"I just wanted to say it's an honour and a privilege. It's an award that has to be shared with my brothers, and with all the fine people throughout the industry that have supported us over many years." **Greg Simpson**, Simpson Seeds Inc., upon accepting his 2001 BASF Pulse Promoter award.



If included in the U.S. Farm Bill, lentils will receive similar subsidization to other crops.

"We're positioning ourselves so our crop is no better or no worse than wheat, or canola, or barley in the farm program. So a (U.S.) farmer is going to have an opportunity to go into a rotation, because right now, unfortunately, they're kind of in a monoculture where they raise just cereal grains. That's a disaster for our country, and not good for crop diversity, and we hope to change that." **Tim McGreevy**, USA Dry Pea & Lentil Council, explaining why his organization is pushing for the inclusion of pulses in the new U.S. Farm Bill.



Garth Patterson Executive Director

CLOSING THOUGHTS

What Your Levy Does For You



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Since 1984, the Saskatchewan

Pulse Growers' Board has collected \$18.8 million from pulse producers and allocated your levy as indicated by the chart on the right.

The Board has identified key issues that are impacting our industry. These include research investment, demand for pulses, foreign production subsidies, crop protection products and rail transportation.

Working together with industry and our partners in other growing regions, under the national framework provided by Pulse Canada, is the key to addressing these issues. A very significant achievement this past year was the Board's success in expanding Pulse Canada's mandate to include research investment and selected policy matters in order to give these issues national attention.

Pulse Canada estimates that an additional \$20 million of research is required on an annual basis in order to enhance our dominant market position. It has been successful in developing a national pulse research network and research strategy that is now being marketed to potential public and private investors.

Varieties have been the key technology to Saskatchewan's pulse success. The Board remains committed to improving the profitability of pulse growers through investment in variety development. Other key areas include pathology and increasing demand through the development of new uses, new pulse crops and new pulse market classes.

Transportation, access to crop protection products, and foreign production subsidies are policy-related issues that affect the competitiveness of our industry. The Board's Transportation Committee has communicated the needs of the pulse sector to key stakeholders. Issues of specific interest to us include railway service, the Federal Transportation Review Panel Report and the role of the monitoring agency on the effects of changes to Bill C-34.

We were successful in leading the drafting of a national crop protection strategy.

Pulse Levy Disbursement (1984–2001)

\$6.67 million - Research and Development
 \$3.51 million - Market Development
 \$1.28 million - Variety Development
 \$1.7 million - Extension and Communications
 \$3.54 million - Operations
 \$2.1 million - Contingency

The Pulse Canada Board has accepted responsibility for the design and implementation of this national initiative that will address minor use and full registration of products, international harmonization, and integrated pest management.

If the U.S. Farm Bill is expanded to include production subsidies on peas, lentils and chickpeas, it will cushion the impact of supply and demand forces on American farmers, and lead to overproduction. We have expressed our grave concern to both the Canadian and American governments.

We value our close working relationships with Saskatchewan Agriculture and Food and industry for many of our communications activities. *The Saskatchewan Pulse Grower* newsletter has evolved into a high-quality magazine called *Pulse Point*. Pulse Days 2002 was a huge success that included an additional 297 viewers on a live webcast. Our web site has been upgraded to provide easier navigation, and now receives over 7,000 hits per month. Winter pulse meetings and summer field days continue to provide leading edge technical and market information to growers.

The events of September 11th graphically illustrated the fact that the forces of globalization have inextricably linked national economies. Traumatic events, economic or otherwise, in any part of the world are now more likely than ever to have a domino effect on other nations and industries. Our pulse industry is no exception. Our success will hinge upon our ability to continue to develop an industry that is progressive, market-driven, technology-based, networked, and nimble.¥





THE KING OF SEED PROTECTION FOR YOUR LENTIL CROP. TREAT YOUR SEED WITH CROWN SEED PROTECTANT.



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OLLECT 티민민 PER ACRE*



ROES

TagTeam pulse crop inoculants combine a phosphate inoculant, for better use of phosphate and a nitrogen inoculant for more fixed nitrogen. It all adds up to an average of 11% higher yield and \$17.40 more profit per acre.

ENTIL DATE

MOR

Some so worth

To find out more about TagTeam, contact your local Philom Bios inoculant retailer, call us at 1-888-744-5662, or visit www.inoculants.com.

TAGTEAM YOUR PULSES, AND START COLLECTING.

PER PLACE



THE PHOSPHATE AND NITROGEN INOCULANT

Philom Bios

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* Smart farmers read the fine print. In 96 farmer applied split-field demonstrations, TagTeam increased yields of pea, lentil, chickpea and dry bean by an average of 11% - that's an average of \$17.40 more profit per acre after costs.