



CROP PRODUCTION

Better wheat yields

Phil Needham shares tips and strategies to increase wheat yields on your farm

BY JASON CASSELMAN

SOIL AND TISSUE TESTING

Earlier this winter, Kentucky-based Phil Needham from Needham Ag Technologies, LLC spoke at a clinic at Falher, Alberta sponsored by Bourgault.

Needham discussed strategies and steps to improve wheat yields.

Phil Needham moved from England to the United States in 1989 and has worked with wheat management systems around the world for over 25 years. At the Falher presentation, Needham shared several tips to increase wheat yields.

Needham recommends implementing a consistent soil and tissue testing program.

Once you have test results, split fields into smaller management zones based on observation and evaluation of field data, including yield information, topography and soil type.

Needham recommends tissue testing wheat at the four-leaf stage. When testing, compare good areas to poor areas to check nutrient levels and evaluate top dress options. Based on Needham's experience, at the five-leaf stage the wheat plant has

to be healthy without any nutrients deficient or out of balance.

With any top dressing program, choose foliar top up products compatible with crop protection products to reduce application costs.

Use tissue tests to identify transient deficiency — the specific demand of a nutrient during reproductive growth or periods of peak demand.

SEED AND SEED TREATMENTS

When you're choosing seed, pick the right wheat genetics or variety for your farm. Find out what a variety brings to the table and what it doesn't. Look at each

variety's disease resistance and favourable growth characteristics.

It's a good idea to evaluate several varieties right on your farm. Needham recommends growers plant as many as six wheat varieties.

Check seed quality and apply seed treatments accurately. Needham has the following tips for seed testing:

Send seed lot samples to an accredited seed lab.

Check seed for germination and vigour. Ask the lab to check vigour with an accelerated aging or cold germ test.

Allow your seed to rest for two months after harvest before sending it for a germination test.

Sort seed for large seed — the goal is seed that doesn't pass through a 2.5 mm or 6/64 inch sieve. Larger wheat seed has better germination and higher yield potential, especially when planted at greater seeding depth or in cooler soils.

A nutrient, or feed analysis, test on the seed tells you what you

have to work with. Compare samples from at least two lots to see which one is better.

If you're going to use your own production as seed, manage seed fields right from the start. Know which field you're using to grow a seed crop — don't just wait until the end of the year to decide which field not to spray with pre harvest glyphosate.

Seed has to have enough nutrients to perform; you may have to prime your seed with micronutrients. Options are to foliar apply micronutrients to the crop in the field, or use a micronutrient seed dressing.

Seed treatments protect roots and early leaves from diseases like seed rots and seedling blights. Seed treatments with both insecticide and fungicide offer complete protection. Seed treating must be done with care and accuracy. Evaluate your seeding treating method and determine if your seed is treated as well as you think it should be. If your seed treating equipment is not achieving your goals, consider upgrading or hiring a custom seed treater.

Needham recommends a rotating barrel-type treater that allows the seed to mix with the treatment, entirely coating each seed.

SEEDING

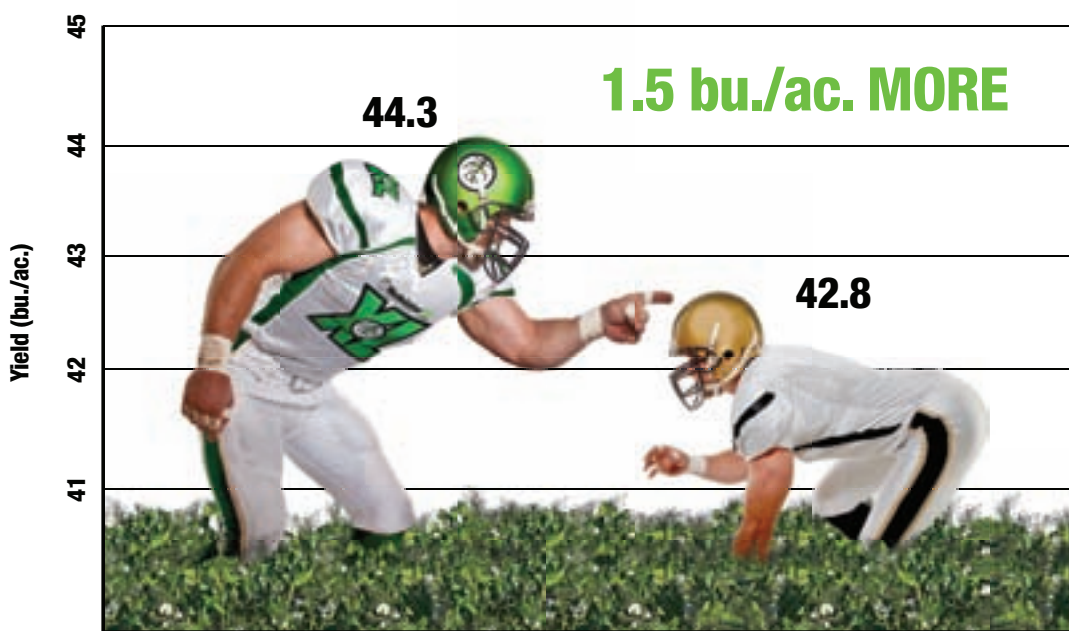
Uniform crop emergence is the goal when it comes to high yield wheat establishment. Needham believes that the top 10 per cent of farmers do the best job of seeding.

First, seed with the right rate. Different wheat varieties have different 1,000 kernel weights. Depending on the year, seed lots can vary by as much as 50 per cent. Check seed counts and target plants per square foot — don't just use the same old couple bushels per acre seeding rate.

WIN BIG!

In 2011 and 2012, independent co-operators in Alberta, Saskatchewan and Manitoba put Nodulator® XL to the test in 54 field-scale trials in peas and lentils. Crops inoculated with Nodulator® XL out-yielded crops inoculated with competitive products 82% of the time, out-yielding our competitor's product by an average of 1.5 bu./ac. or 3%.

2011/12 Nodulator® XL Performance Summary - Pea and Lentil



And 2012 grower experience is proving that when it comes to pea and lentil inoculants, nothing outperforms Nodulator® XL. Here's a cross section of yield data, hot off the fields.

Grower	Location	Pea Yield (bu./ac.)	Lentil Yield (bu./ac.)
Mike Verbeurgt	Ceylon, SK	55	27
Ben Hofer	Foremost, AB	60	32
Eli Wurz	New Dayton, AB	60	35
Paul Hofer	Lumsden, SK	55	40
Clinton Paysen	Central Butte, SK	52	30
Jeff Downey	Perdue, SK	54	52
Miles Gerwin	Kindersley, SK	40	40

For complete trial data please visit nodulatorxl.com



www.nodulatorxl.com

Nodulator® and XLerated Performance, Accelerated Yield.™ are trademarks or registered trademarks used under license by Becker Underwood Canada Ltd. The Becker Underwood logo is a trademark of Becker Underwood, Inc. and is licensed to Becker Underwood Canada Ltd.



Evaluate seed placement performance by monitoring stand counts over the first 10 days

Place seed at the same depth across the whole field to get a picket fence stand of plants. Target uniform seed placement at one inch deep, and seed narrow rows speeds that do not move much soil. To achieve uniformity Needham recommends seeding between the previous crop rows rather than across the rows. Needham promotes seeding wheat at narrow row spacing when targeting higher yields and cited research showing yield advantages from narrower row spacing compared.

Achieve uniform seeding by managing residue flow and residue clearance with seeding equipment and openers.

Needham recommends very low soil disturbance with a narrow opener with little soil movement. He does not recommend side band openers or twin row openers, because he sees increased soil disturbance and more variation in seeding depth.

Needham referenced a study called "RelativeSeedlingEmergence Patterns" (by Gan, Stobbe and Moes, in "Crop Science," Vol. 32



Sep-Oct 1992). These researchers found: "Averaged across two years, wheat plants that emerged on Day 1 to Day 3 produced 1.4 times the yield of those which emerged on Days 4 to 6, and 3.2 times the yield of those which emerged on Days 7 to 9."

Evaluate seed placement performance by monitoring stand counts over the first 10 days as the crop emerges.

WEED CONTROL

Weeds have no place in the field. Weeds allowed to grow larger than an inch in size cost yield. Needham believes narrow-seeded rows offer improved crop competition with weeds compared to crops seeded in wider rows.

Manage perennial weeds with glyphosate in the fall prior to seeding the crop.

Pre-seed burn off in the spring with glyphosate and a tank mix partner that targets the weed spectrum present.

Stay on top of weeds with in-crop applications in a timely manner. Choose effective in-crop herbicides that control weeds with least amount of crop damage.

IN-CROP OPERATIONS

The right timing of in crop operations is a prime objective in a high yield wheat system. Needham told that audience that, in England, they used to say the difference between a good farmer and a poor farmer was a week.

Now, he believes that difference is only couple of days.

Early season foliar diseases at the two- to four-leaf stage warrant early season fungicide application. Use a triazole fungicide application with herbicide. With later season disease evaluate the justification for disease management. Have enough sprayer capacity to spray all the wheat with fungicide on the farm in a five-day window. You will see the best response to fungicide application with on-time spraying.

When spraying fungicides, watch maturities. Triazole products do not extend maturity as much as a strobilurin (or products containing strobilurin fungicides).

When timing fungicide application plan for prevention; protecting the crop before infection is better than relying on curative action after the crop has disease. Look at weather conditions and forecasts to determine if disease pressure is moving towards you.

Needham believes that wheat yield response to fungicide is variety specific.

Apply fertilizer according to yield potential. Start with 90 per cent of nutrients applied for removal, based on a 10 year yield average. Then, if you get rain, put on more fertilizer.

Needham's recommendation is to apply additional nitrogen after jointing to make more yields and fewer tillers. Understand that too much nitrogen too early in the season will contribute to lodging, so consider reducing the amount of nitrogen placed in the soil at seeding time and post apply nitrogen

later in the season when you better understand the crops potential.

Needham does not like to see fall banded nitrogen. Some plants will be seeded right over the nitrogen strip, and that is not good for uniformity. Needham prefers applying the majority of the nutrient within a mid-row band. Use technology that can help apply the right rate to the crop in season. Optical sensor rate controllers on application equipment can help determine the correct rate of in-season nitrogen application.

CROP RESIDUE

Manage crop residue correctly starting at the combine the year prior to seeding your wheat crop.

Ideally, evenly spread residue the width of the header. Do not leave any strips of uneven residue spreading in the field.

Needham recommends a high performance chopper like the Redekop MAV chopper — a chopper that provides 100 m.p.h. or more of wind speed — to help distribute straw and chaff (assuming chaff and straw are blended together on a rotary combine).

Needham also recommends using the wind in your favour when harvesting, even changing the direction of combining depending on the direction of the wind at harvest. He is definitely not a fan of harrowing for residue management and recommends buying a better straw spreader rather than a harrow to manage residue.

Needham recommends leaving



PHOTO: JASON CASSELMAN

Phil Needham believes the top 10 per cent of farmers do the best job of seeding.

stubble as high as possible. If you have eight-inch row spacing, you should target no taller than eight-inch high residue.

On seeding equipment, a single narrow point better is best to manage residue. To check residue flow on openers mount a wireless camera to visually see how well the seeding tool is allowing residue to flow around the opener. If you are seeing residue bunching and piling as you're seeding, you're not getting optimum residue flow.

YIELD GOALS

To get high wheat yields, you have to know what you are trying to accomplish, evaluate what you

are seeing in the field and check to what your goals are.

Gather information and observations from your wheat fields during the growing season. Compare areas with different tiller counts and head counts per square yard and determine what factors caused the variation. How many spikelets per wheat head and how many kernels per spikelet do you get in good areas compared to poor areas?

Of the potential weak links to growing high wheat yields that Phil Needham identified in his presentation, most don't cost anything to implement.

Jason Casselman is a partner and agronomist with Dunvegan Ag Solutions Inc. (www.howtogoagsi.com) at Rycroft, Alta



OUR NEWEST PULSE FUNGICIDE IS SO ADVANCED IT'S CAUSING WHISPERS OF VISITORS FROM "OUT THERE".

It's easy to attribute something this innovative to a higher intelligence. New PRIAXOR™ DS fungicide packs an impressive range of benefits. It provides more consistent, broad-spectrum disease control through its multiple modes of action, and it delivers the unique benefits of AgCelence™. In short, that means greener leaves and stronger stems for higher yield potential. Discover it for yourself at agsolutions.ca/priaxords today.



AgCelence
Expect more.

BASF
The Chemical Company

Always read and follow label directions.

AgSolutions is a registered trade-mark of BASF Corporation; AgCelence and PRIAXOR are trade-marks of BASF SE, all used with permission by BASF Canada Inc. PRIAXOR DS should be used in a preventative disease control program. © 2013 BASF Canada Inc.