Idaho Crops & Soils News

A newsletter for Idaho crop producers

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The goal of this monthly newsletter is to serve the best interests of Idaho crop producers. Correspondence and inquiries should be addressed to: Olga Walsh, Cropping Systems Extension Specialist, Southwest Research and Extension Center, 29603 U of I Lane, Parma, ID 83660, Phone: (208)722-6701 (ext. 218), Fax: (208)722-6708, Email: owalsh@uidaho.edu

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University of Idaho Extension improves people’s lives by engaging the University and our communities through research-based education. Our areas of expertise are Agriculture, Community Development, Family and Consumer Sciences, Natural Resources, and Youth Development.

To enrich education through diversity the University of Idaho is an equal opportunity/affirmative action employer and educational institution.
WHAT’S NEW?
2016 - International Year of Pulses

By: Olga Walsh

- Pulses (grain legumes) are high in protein, virtually fat-free, and have low Glycemic index.
- Pulses are affordable, full of fiber and rich in iron, potassium, magnesium, zinc and B vitamins.
- Pulses help protect against type 2 diabetes, high cholesterol and certain cancers.
- Pulse crops are highly water-efficient, and can be grown in water-limited environments.

The International Year of Pulses stirring committee has developed a series of lessons that can be incorporated into school curriculum. The lessons contain information, facts and figures as well as ideas and activities focused around issues such as health and nutrition, food security and environmental sustainability. The purpose is to inspire young people to learn about the role of pulses in feeding the world, and to encourage them to play a more active role in matters affecting their environment.

The lesson plans can be accessed at: http://iyp2016.org/resources/lesson-plans.
Pulse Crops in Idaho

A recent House Concurrent Resolution 32 gave an official state recognition to pulses — peas, lentils, dry beans and chickpeas — in February 2016. The resolution states that pulse crops “are a vital source of plant-based proteins and amino acids” and should “be eaten as part of a healthy diet to address obesity, as well as to prevent and help manage chronic diseases.” It also notes that pulses contribute nitrogen to the soil and are beneficial for soil fertility and environmental quality.

More than 200,000 acres of pulse crops are grown in Idaho annually. Not many are aware that Moscow, Idaho, is known as the pea and lentil capital of the world. The USA Dry Pea and Lentil Council is located in Moscow. Pulses are major crops in Idaho and an important part of the state’s economy.

Environmentally Smart Nitrogen Performance in Northern Great Plains Spring Wheat Production Systems

By: Olga Walsh with Kefyalew Girma

Environmentally Smart Nitrogen (ESN) is a common enhanced-efficiency. It is produced by coating urea granules with a polymer shell to enable a slow-release of N to the soil. Several studies showed that higher crop yields and superior quality could be achieved with ESN compared to
conventional urea. This, in turn, delivers to growers higher return on fertilizer investment.

**How ESN Works**

- Water moves in through the coating
- Nitrogen dissolves into solution inside the granule.
- Nitrogen moves out through the polymer coating
- Nitrogen moves into soil solution for plant uptake

Studies conducted in a number of crops have shown that all of the following factors affect ESN effectiveness:
- weather conditions
- soil characteristics
- application time
- application method
- crop rotations.

A common misconception is that soil moisture is the only factor affecting the rate at which nitrogen is being released from the ESN granule. However, many studies have revealed that soil temperature is one of the major factors controlling nitrogen release speed. For example, a field trial in rice has shown that, once all nitrogen has been dissolved inside the ESN casing, 65 to 90% of all nitrogen is released into the soil within a 30 day period at soil temperature of 68°F.

A recent International Journal of Agronomy publication summarizes a 3-year study conducted in North-Central Montanan that evaluated ESN in wheat.

Link to full text of the article:  
[http://www.hindawi.com/journals/ija/aip/8969513/](http://www.hindawi.com/journals/ija/aip/8969513/)
Our study showed that with protein-adjusted revenue, farmer would not recover investment costs from ESN or ESN-urea blend compared with urea.

With ESN costing consistently more than urea per unit of nitrogen, urea can be recommended as nitrogen source for spring wheat in Northern Great Plains.

**Crop Sensors: Potential and Limitations**

By: Olga Walsh

“Recent survey showed that 80% of agricultural service providers offer precision agriculture technologies and equipment. In contrast, only 20% of crop producers are utilizing precision agriculture methodologies, including GPS, yield monitors, variable-rate technologies, automated steering, crop sensors, smart irrigation, and others.”

In a recent article published in Traders Dispatch, focuses on crop sensors, discusses some of the reasons for low levels of adoption, and looks at potential benefits and limitations associated with their use.

“Crop sensors and sensor-based systems range from a couple of hundred dollars to several thousand dollars, depending on equipment
scale and the specific purpose of sensor use. Because of a combination of agronomic, environmental, and economic benefits associated with crop sensor use, growers utilizing sensor-based systems qualify for Environmental Quality Incentives Program (EQIP) - voluntary conservation program that helps agricultural producers in a manner that promotes agricultural production and environmental quality.


It is important to note, that even the most costly large scale sensor-based systems for variable rate fertilization typically pay for themselves in one to two growing seasons, with continuous returns of investment for years to come.”


Measuring spring wheat canopy reflectance (Normalized Difference Vegetative Index, NDVI) and biomass samples, Rupert ID, May 2016.
GUEST CONTRIBUTION

Ten Things You May Not Know About GMOs

We do not have a guest article for this newsletter issue (the growing season is in full swing 😊). In this issue, I would like to share with you some information about genetically Modified Organisms (GMOs) put together by Wanda Patsche, with Minnesota Farm Living. The full post found here: http://www.mnfarmliving.com/2015/05/10-things-you-may-not-know-about-gmos.html, here are the key points of the post:

- GMOs is not a food. GMOs are a breeding technology.
- Herbicide resistant weeds, or “superweeds” are not caused by GMOs.
- The medical community also uses GMOs.
- GMOs do happen in nature.
- Europe IS importing feed/food that has used the GMO technology.
- GMO’s are not causing the increase in food allergies.
- Long Term Studies on GMOs.
- GMOs only affect 1-4 genes, where traditional breeding plants affect 10,000 - >300,000 genes.

How Crops Are Genetically Modified

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<th>Traditional Breeding</th>
<th>Mutagenesis</th>
<th>RNA Interference</th>
<th>Transgenics</th>
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<td>Crossing plants and selecting offspring</td>
<td>Exposing seeds to chemicals or radiation</td>
<td>Switching off selected genes with RNA</td>
<td>Inserting selected genes using recombinant DNA methods</td>
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Number of Genes Affected

- 10K - >300K: No way to assess
- 1 - 2
- 1 - 4

Desired gene(s) inserted with other genetic material. No safety testing requirements.
Random changes in genome, usually unpredictable. No safety testing requirements.
Targeted gene(s) switched off or 'silenced'. Safety testing required.
Desired gene(s) inserted only at known locations. Safety testing required.
GET TO KNOW ID AG
Nitrogen Management - Stakeholder Survey

As part of our precision nutrient management project, we are conducting a statewide stakeholder survey on nitrogen fertilizer management. Please encourage your clientele to complete the survey below.

Please forward completed survey to:

Olga Walsh, Cropping Systems Agronomist, University of Idaho,
Email: owalsh@uidaho.edu;
Parma Research & Extension Center, 29603 U of I Lane, Parma, ID 83660
Tel: (208)722-6701, ext. 218; Twitter: @IDCrops; Web: ID Crops & Soils

1. Choose what best describes your occupation:
   a. Grower
   b. Crop consultant
   c. Industry representative
   d. Agricultural researcher
   e. Student
   f. Other

2. What is the most costly input in your farming operation?
   a. Nitrogen fertilizer
   b. Equipment
   c. Fuel/energy
   d. Water
   e. Labor
   f. Pesticides/herbicides

3. How do you manage your nitrogen?
   a. Use field records
   b. Work with crop advisor and fertilizer dealer
   c. Discuss with family and neighbors
   d. Use crop sensors
   e. Consult University Extension
4. Choose what describes you best:
   a. I am happy with my nitrogen management, and do not need any improvements
   b. I could do better with managing nitrogen.

5. Choose what describes your operation most:
   a. My fields are uniform → I do not see variation in yields and quality.
   b. My fields are not uniform → I see variation in yield and quality.

6. Are you using any of these tools in your operation?
   a. Annual soil test
   b. GPS
   c. Yield monitor
   d. Precision planting
   e. Variable rate fertilizer
   f. Crop sensors
   g. Reference strips

7. Are you aware of precision agriculture research in Idaho?
   a. Yes
   b. No

8. Are you aware of crop sensors for nitrogen management?
   a. Yes
   b. No

9. Do you change nitrogen fertilizer management year to year?
   a. Yes
   b. No

10. Do you change nitrogen fertilizer management field to field?
    a. Yes
    b. No

11. Most important factor for changing nitrogen management?
    a. saving on fertilizer cost
    b. applying fertilizer based on crop need
    c. preventing fertilizer loss
    d. increased crop yield quality
    e. simplifying and saving time

TWO OTHER WAYS TO TAKE THE SURVEY:

1) On Twitter: @IDCrops