



## Know your insects: Cutworms

After seeing some damage in the recent years it is increasingly important to keep an eye out for cutworms. Cutworms can affect most crops but are of the biggest concern in crops with low plant counts such as peas, chickpeas, lentils and canola. There are various species of cutworms, which is important as different species have different feeding techniques and different lifecycles.

In the fall months, adult cutworms may lay up to 1000 eggs in the soil with each species having differing preferences on location. During April and May the eggs hatch and the larvae begin feeding on the plant seedlings. Depending on the species, the larvae moult six or seven times, during which time they do not feed. When moulting they remain a few centimeters below the soil in an idle state. Studies in Alberta have found that 20%-50% of the cutworms in a field could be in the idle state. This is problematic when trying to use insecticide to control cut worms, as some larvae are inactive in the soil at the time of application. To determine the difference between the moulting stage and non moulting stage; a non-moulting larvae will have green plant matter in its stomach whereas a moulting larvae will have an empty stomach. After the larvae have finished feeding they will burrow deeper in the soil and pupate. After pupation, adult moths emerge and will begin laying eggs within a week of emergence. It is hard to predict the damage and

length of risk on cutworms as the larval stage can shorten or lengthen up to thirty days depending on the species and temperature.

When scouting for cutworms, you should check every week from mid May until early June. Damage will appear as missing rows or patches in the field where you will find bare spots or wilted

cut off plants. Plants are generally cut off at ground level and lay wilted on top of the soil. The cutworms

feed at night which makes it hard to see them, but after finding damage, if you dig near a damaged plant you will likely find a cutworm. Estimated economic thresholds in canola are reached when more than 3-4 cutworms/m<sup>2</sup> are present.

Control methods for cutworms are difficult, especially if they are in a moulting stage. Products such as Permethrin or Chlorpyrifos can be effective as they act through both contact and ingestion. Application in the very early morning or late evening will be more effective as the cutworms prefer to feed at night. Cultural control methods, although not always practical in today's direct seeding world, include tilling 10-14 days prior to seeding, tilling prior to cold weather and leaving a crust on the soil in the fall to deter adults from laying eggs. In some cases, treatment that is localized to the affected patches may be more economical.

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Sources for this article include *Controlling Cutworms in Canola* from the Canola Council of Canada and the Government of Manitoba website. For more information on scouting and controlling cutworms in Canola, visit your local Rack Petroleum location.

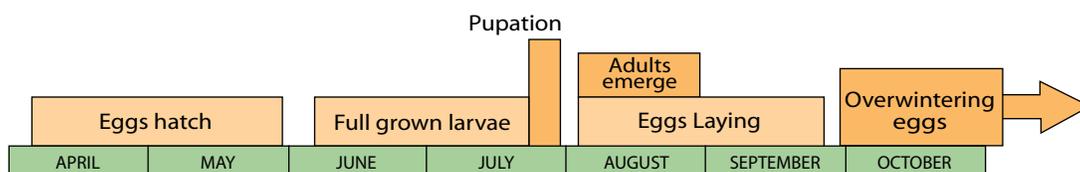


Diagram from *Cutworms in Canola* from the Canola Council of Canada

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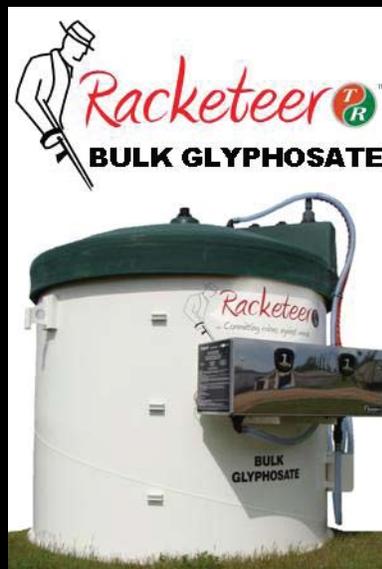
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## Got Fertilizer?

Rack Petroleum is proud to announce 2 new fertilizer plants in the company! The Rosetown location received an upgrade to its plant this winter and the Broderick location has received a new full capacity dry plant. With the upgrade to Rosetown and the addition to Broderick, customer wait times and blend times are expected to improve.

The upgrade to Rosetown's fertilizer plant has been anticipated for some time and is a welcome improvement to the location. Utilizing a volumetric blending system, the plant can blend product as it is being weighed which will speed up inload times immensely. As well, the overhead weigh bin will decrease outload time to contribute to the increased efficiency of the new plant. Besides the improved load times at the new plant, additional storage has been added to decrease stress on inventory. Faster load times with more storage will be a welcome addition to the Rosetown location this spring.

The overhead weigh bin will decrease outload time to contribute to the increased efficiency of the new plant.

Broderick is excited with the addition of a dry fertilizer plant at the location. Having a dry plant on location will decrease wait times for blends during season and allow the location to more efficiently manage their dry fertilizer customers. With 900 tonnes of storage, Broderick will have enough dry products on hand to keep all of their dry fertilizer customers happy this spring. As well, the new plant has full blending capabilities which means they can create a blend on site as opposed to having it blended at the main plant in Biggar. Adding a fertilizer plant to Broderick will be a great improvement to the location.

Increased fertilizer handling capacity at Rack Petroleum means that customers will be better and more efficiently served this season and in seasons to come. The staff at both Rosetown and Broderick look forward to serving you with their new and improved fertilizer blend plants this year.



*The new fertilizer plant in Rosetown was completely replaced this year to better accommodate the demands on the location.*

## Reduce your Nitrogen Loss

As the cost of inputs rise, so does the need for maximizing return on dollars spent. One of the largest annual expenditures is fertilizer. As opportunity in the grain market increases so have fertilizer application rates and fertilizer prices. Producers are finding the need to utilize their crop's nutrition more efficiently, to take advantage of the opportunity, and simultaneously manage risk.

Nitrogen is essential in plant growth, development, protein and yield. In fact nitrogen use may have become over-emphasized and in some cases over applied due to misdiagnosed deficiency symptoms, low yield, poor soil tests or inefficient application. Correct rates and proper timing are the main goals when applying fertilizer. There are products now available that help producers achieve this more efficiently. Two products that make nitrogen more efficient in the field are Agrotain® and Super Urea®. Agrotain® decreases the amount ammonia gaseous losses from the soil while Super Urea® decreases not only gaseous losses of ammonia but also losses due to leaching of nitrate nitrogen. These products can increase the amount of nitrogen available to the plant when it is needed.

Urea converts to plant available nitrogen through the following path: urea ( $\text{CO}(\text{NH}_2)_2$ ) → ammonia ( $\text{NH}_3$ ) ammonium ( $\text{NH}_4$ ) → nitrite ( $\text{NO}_2$ ) → nitrate ( $\text{NO}_3$ ). The ammonium and nitrate stages are the only two forms of nitrogen that plants are able to use. For urea to convert to ammonia it requires soil hydrogen and as the ammonia converts to ammonium it requires additional soil hydrogen. Agrotain® works by tying up the urease enzyme which is responsible for hydrolysis; the process of converting applied urea to ammonia. By slowing hydrolysis it decreases the amount of ammonia produced per unit of

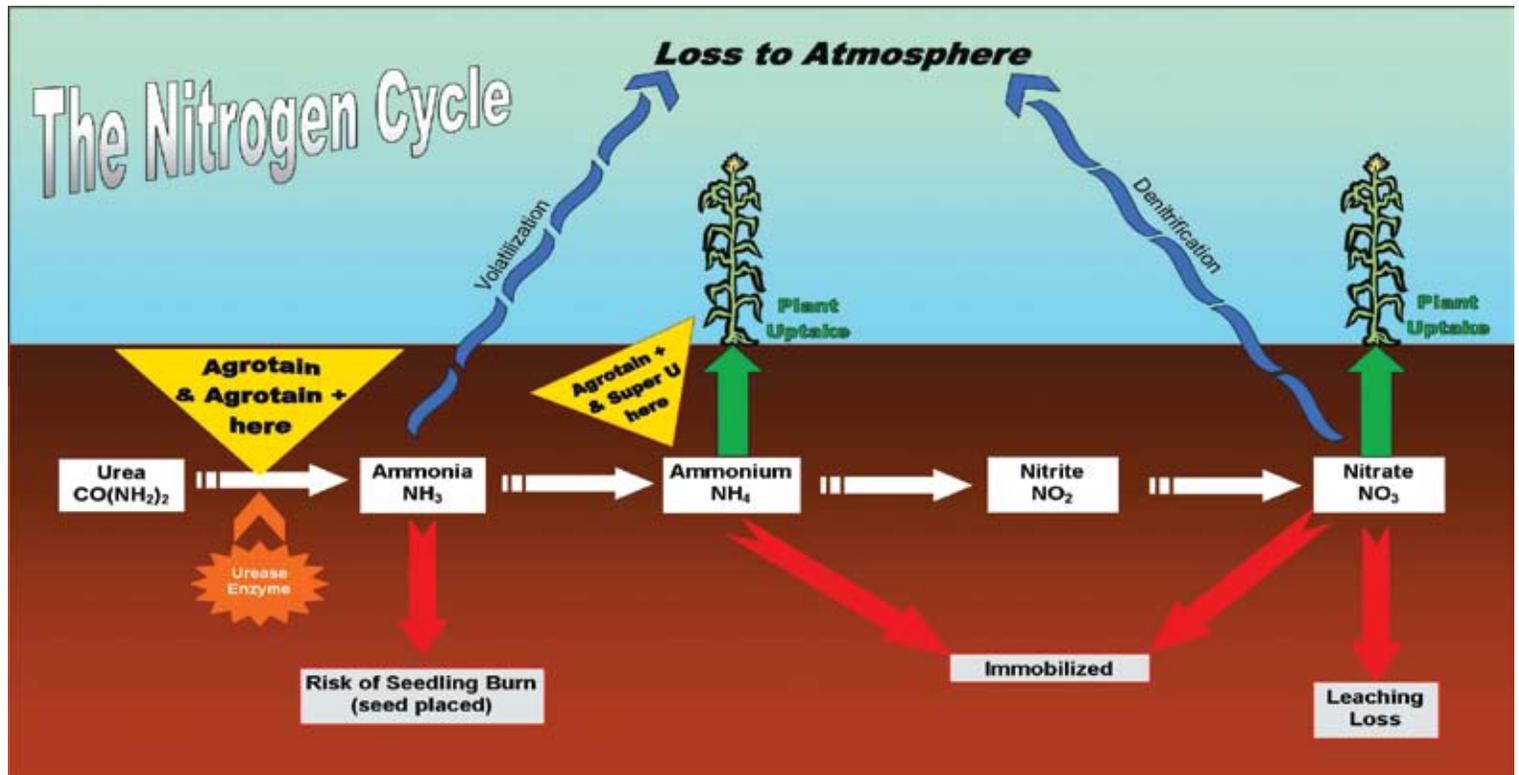
Correct rates and proper timing are the main goals when applying fertilizer.

time and allows for more hydrogen to move in and around the urea prill in a timely fashion to produce the preferred ammonium (plant available, non leachable form of nitrogen). This technology ultimately reduces losses occurring from ammonia gas losses incurred when banding and/or broadcasting urea. Super Urea® contains Agrotain® and another technology that acts to stabilize nitrogen in the plant available, non leachable form of ammonium. This reduces denitrification in saturated soils and leaching losses due to high rates of water percolating through the soil. Super Urea® is a great option for delayed nitrogen feeding and minimized nitrogen losses.

Agrotain® comes in 3 different formulations: Agrotain® Dry (used on granular urea), Agrotain® Plus (used in UAN) or Agrotain® Ultra (impregnated on granular urea or added to UAN) and can be added to fertilizer blends for sidebanding or broadcasting. Super Urea® comes as a preformulated granular urea and can be added to fertilizer blends for sidebanding or broadcasting.

With increased efficiency in nitrogen usage comes the question: how much nitrogen have we actually been throwing away? Research is beginning to emerge suggesting that the traditional nitrogen requirement curve is incorrect and is more of a display of nitrogen loss than nitrogen use. If this is correct there is opportunity for growers to reduce fertilizer costs by utilizing products that increase efficiency and continue to increase yields.

For more information on these products, or other nutrient management options, contact an Ultimate Yield Agronomist at your local Rack Petroleum today or call 1.866.721.1800.





## The real profitability of Variable Rate Technology

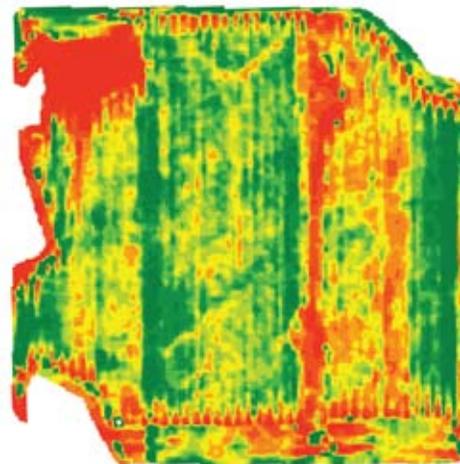
Being inundated with variable rate technology is becoming part of the Western Canadian farmer's life. Map after map, colour after colour, field after field; but what does it all mean? Variable rate maps are one tool available to farmers to make more precise applications of crop inputs. The maps can reveal problem areas in individual fields that may have been difficult to determine otherwise. At the end of the day though the question still remains: do these precision maps actually make the farm more money? After looking at multiple maps for the same field, most farmers have a difficult time

determining if the cost was worth the effort. There are many variables to account for when using variable rate mapping technology, and Rack Petroleum is working to make those variables more clear. "Too often a grower buys variable rate maps without properly understanding them and can end up wasting money on the technology" said Dennis Bulani, president of Rack Petroleum, "We want to make this technology work more efficiently for the farmer. If we can't help them make a profit, then we're not using the technology properly". The variable rate profitability map is one way to determine if variable rate technology is a useful tool on the farm.

### The Rack Profit S29-29-15.35 Map Math Output

65.28	10.9 Acres
164.54	10.4 Acres
202.58	11.3 Acres
221.78	10.8 Acres
232.54	7.0 Acres
241.61	13.4 Acres
250.69	9.7 Acres
261.72	19.6 Acres
272.71	9.7 Acres
281.73	12.5 Acres
290.93	6.6 Acres
304.72	13.7 Acres
354.62	12.3 Acres

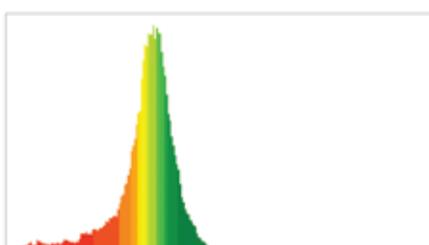
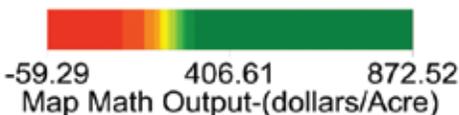
dollars/Acre



At Rack Petroleum, the resident Geomatics Technician Kyle Imlach, is creating variable rate profitability maps. "Basically I have the ability to layer all sorts of data and compile it into one map that shows dollars per acre spent". This creates a map that shows exactly what has been spent on each acre as opposed to a blanket dollar per acre amount for the entire field. By doing this, you can accurately determine if the variable rate applications have paid off for the farmer.

Being able to determine the farms profit at the acre level enables the farmer to make better decisions. More information is always valuable, but being able to interpret that information is the key. In assessing profitability on a farm, the manager will be able to make better, more efficient decisions now and in the future.

Variable rate technology is a valuable tool and Rack Petroleum can help you determine if it's right for your farm.



Average: 243.97      Area: 147.25 Acres  
Std Dev : 72.73dollarsTotal: 35925 dollars

### Rack Petroleum Ltd.

Box 837  
Biggar, Saskatchewan  
S0K 0M0  
Phone: 1-866-721-1800  
Fax: 306-948-5091  
E-mail: therack@sasktel.net

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## About Us

*Rack Petroleum Ltd. is an independently owned and operated agricultural input business that has evolved to excel at supplying farm customers with a range of inputs as well as unsurpassed agricultural advice and recommendations.*

*Our mission is to transfer technology to our customer while striving for excellence in our product and service offerings safely and profitably, at a price that can be customer attractive and measurable for the value received through operational efficiency and excellence.*

*Rack is one of the only independent retail families that offers every fertilizer type; anhydrous, dry, and liquid products. Rack also works closely with farm customers to offer full service 24/7 fuel delivery priced on the open market. The company has shown tremendous growth as a result of its employee commitment to work hand in hand with growers to provide daily solutions in every aspect of farm production.*

*The company prides itself in being able to assist the customer in determining the solution to their unique situation, and deliver the required product or service to the farm or field. The Rack can discuss a problem, create a solution, and supply, deliver & custom apply the inputs to provide the solution, all in a timely manner.*