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# Where to Put your Fertilizer Dollars

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PLANTS DIG SOIL CONSULTING LTD.

Commodity prices are up and – no surprise – fertilizer prices are also up. Have you already had the salesperson contact you with a product that will give you free nutrients and only cost you \$20/ac? How should you evaluate these products?

I put a lot of weight into replicated independent trials. If there are no statistics, they are not any better than a pretty picture that has been put up on Twitter showing a plant with, and without, their product. I can go into a field and pick out both a good and a poor plant and tell you any story I want about why there is a difference. And I am sure you can do that too.

Product brochures and websites will almost always have trials up that prove how good their product is. The problem is that you do not know how many trials it took to get the one where they won. I have seen studies completed on products by grower groups where a few locations had a significant effect whereas the majority did not. What is stopping a manufacturer from taking the trials where they won, putting that up on their site, and telling you how much you will gain by using it?

Another misleading tactic that I notice is when statements declare that the product was university-tested but then there is no evidence to provide proof of trials, or corresponding data to back it up. Just because it was tested at a university does not necessarily mean that a desired effect was reached. Sometimes they will put up the trial where numerically it shows a difference, but there are no statistics performed.

Statistics do not need to be scary. Imagine you are at a coffee shop and one neighbour said they tried a new product and saw a 10-bushel increase. Two others chimed in said it just paid for itself at a 4-bushel increase. Finally, one person said they lost 2 bushels using it! The average here is a 4-bushel increase. Just enough to pay for the product. Would you try it? Statistics simplifies this by telling you a probability that the effect was real. In this case, I would say there is too much variation to prove its worth.

I have yet to find a product in a jug that is worth the effort. In the case when both fertilizer and crop prices increase, I would follow the same plan that I always follow: Put the money into things that have good chance of return and cut back on what you do

not need this year.

If you have been keeping up with replacing the phosphorus that you export each year and your soil tests show moderate levels, then you should be able save money by going lower. Do not just cut arbitrarily. Talk to your agronomist to find out which fields and which crops are high risk and low risk. In the years when phosphorus is cheaper, then put the same amount of money into it and build up levels again.

If you have been using cover crops for years, then this is where they should start to pay for you. Their main benefit, from a nutrient management standpoint, is to scavenge leftover nutrients, unlock legacy fertilizer applications, and if a legume is included that can grow long enough, fixing some new nitrogen from the atmosphere. This increase in efficiency may allow fertilizer applications to decrease. Of course, you may choose to not lower them: They may start to give you greater yield potential as you increase the aggregate size and stability of your soil and capture more rainfall.

Before starting with cover crops find out how successful farmers in your area are growing them. We have found that in Southern Alberta waiting until after harvest is generally too late. There just is not enough of the season leftover to establish a plant and give it time to grow.

The best time is usually after herbicide, just before the cash crop is about to explode in growth. The cover grows under the surface and is ready to go after harvest. If you are not convinced on this think of all the weeds you see growing in September – they were likely there at harvest, just small plants at the surface, ready to grow as soon as there was more sunshine from harvesting the crop.

This does not have to be complicated, but it does require some planning. You do not need expensive mixtures of seed to do this. If it will grow in our climate, if you can kill it effectively, and if you are sure it will not become a weed, then use it. Any plant is better than no plant at all.

Instead of products that claim free nutrients right now, take that money and put it where it is going to give you the greatest payback in this season. Start by making sure your fertility will support the crop you want to grow. If you are ready to try cover crops, then put a little money into that.



## New invasive species detected in Cypress County

### Cutleaf Vipergrass

On June 25, 2020, the Alberta Biodiversity Monitoring Institute (ABMI) made us aware of a new to Canada species called Cutleaf Vipergrass (*Scorzonera laciniata*, Asteraceae), in Cypress County.

At first glance, Cutleaf Vipergrass resembles Goat's Beard (*Tragopogon dubius*, Asteraceae) based on the flower and seed head, but it is noticeably different in having distinctive pinnatifid leaves and from what we have found, it is a much smaller plant. The plants were difficult to see, even in the short, dry prairie grass. We did not see the yellow flowers, but the seed heads helped us find the plants.

The original specimen was discovered in the summer of 2018 during routine ABMI activities. It was identified and confirmed as Cutleaf Vipergrass in 2019. There were 6 plants found in June of 2020 by the University of Alberta. Soon after, the landowner returned to destroy them. During our inspection in July 2020, several more plants were found in the area. Staff dug out all the plants they found, about one full garbage bag. No plants were found during another inspection in September. We suspect there will be more plants next spring as the seeds germinate and grow that were blown around and spread by animals. We will continue to inspect the area and destroy



any new plants growing. Since these plants were randomly found in an isolated area with no major roads close, no hay brought in, etc, it is a mystery as to how this species arrived and established itself here.

Based on the species' ecology, it has the potential to spread throughout the dry mixed grasslands of Alberta and could pose a risk to local ecosystems and cultivation activities. It is listed as a noxious species under the Utah Noxious Weed Act and is considered invasive by the Montana Conservation Data Centre. Since there have been populations found near the USA/Canada border in Montana, according to the Montana Field Guide, we advised the Counties of Forty Mile, Warner and Cardston to watch for it in their travels as well.

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## Purple Loosestrife

*Lythrum salicaria*

Provincial Designation:  
Prohibited Noxious

Last Updated January 2014

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### Overview:

Purple loosestrife is a hardy perennial of freshwater habitats such as marshes, water-filled ditches, natural waterways, and irrigation canals. It was used for medicinal purposes in Greek times and became a favoured ornamental pond plant by the 1800s in English gardens. Native to Europe and Asia, it first arrived in North America in the 1800s in ship's ballast or via imported sheep/wool.

Purple loosestrife has tremendous reproductive capacity. Seedlings quickly develop a strong taproot from which new shoots arise annually. Stems increase in number each year – mature plants can have 30 to 50 stems per rootstock. Plants bloom throughout the growing season and a single plant can produce more than a million seeds each year. Flowers are pollinated by bees and butterflies.

Infestations quickly take over wetlands, excluding other plant species. In turn, wildlife disappears as habitat for nesting waterfowl and water-living mammals decreases and cover for predators increases. The proper

functioning of wetlands is also degraded as infestations disrupt water flow.

There are a few native plants in Alberta that go by the common name of "loosestrife" however they are completely unrelated plants of the genus *Lysimachia*.

### Habitat:

It prefers moist, highly organic soils and neutral to alkaline pH. Purple loosestrife tolerates shallow flooding and partial shade. It has low nutrient requirements but flourishes in areas where fertilizer runoff is prevalent.

### Identification:

**Stems:** Are woody and square-ish, having four to six sides, and grow 1 to 1.5 m tall. Mature plant stems can reach 3 m in height and form short lateral branches.

**Leaves:** Are stalk-less and opposite – may be whorled near the base – lance shaped, wider near the stem, and 3 to 10 cm long. Leaves are sometimes covered in fine hairs.

**Flowers:** Are reddish-purple (sometimes white or pink) and have 5-7 petals. More than 2 flowers per bract are clustered in leaf axils - blooming begins at the bottom of the flowering stalk and progresses upwards. Spikes contain 3 flower types with stamens of different lengths.

**Seeds:** Capsules are 2 mm wide 3-4 mm long. The tiny seeds are less than 1 mm long and have no endosperm therefore must germinate early season when conditions for photosynthesis are greatest. Seeds can remain viable for 2-3 years when submerged.

### Prevention:

Purple loosestrife can still be found for sale on occasion, even with a different Latin species name, however it is still the same non-native, invasive plant. Established infestations are extremely difficult to get rid of, so prevention and control of isolated new plants is very important. Irrigation systems provide ideal habitat and seed distribution. New plants can arise from stem and root fragments and be transported in wetland mud.

### Control:

**Grazing:** Not palatable to grazers and seed/seedlings could be transported in mud on animals' feet and legs.

**Cultivation:** Not feasible in wetland areas, and stem/root pieces and re-sprouting would produce even more plants.

**Mechanical:** Mowing is not effective. Hand pulling young plants is easily done and can eradicate small infestations. Shoots of mature plants can be cut – if done late season there will be reduced re-sprouting, however there is the risk of spreading seed. Cut/pulled plant stalks should be bagged on site and thoroughly burned or disposed of in a landfill. Efforts will need to be repeated for a few years.

**Chemical:** Glyphosate is registered for use on purple loosestrife. The use of herbicides in aquatic environments requires Alberta-specific applicator certification and permits. Always check product labels to ensure the herbicide is registered for use on the target plant in Canada by the Pest Management Regulatory Agency. Always read and follow label directions. Consult your local Agricultural Fieldman or Certified Pesticide Dispenser for more information.

**Biological:** Two defoliators, *Galerucella californiensis* and *G. pusilla*, and a root-mining weevil, *Hylobius transversovittatus*, have been released at locations in Canada and proven successful.



U.S. Forest Service website, www.fs.fed.us



Flowers