



# Saskatchewan Forage Council

## Forage Crop Questions and Answers

Prepared by Randy Pastl, MSc, P.Ag. and Neville Wohlberg, P.Ag.  
Saskatchewan Forage Council

*If I want to seed a forage crop this spring, should I seed it on a field that was summer fallow last year, or seed it directly into standing stubble?*

The main thing to keep in mind when seeding forage crops is that the seeds are considerably smaller than most cereal or oilseed crops. It is important to get very close seed-to-soil contact to encourage germination. A desirable seedbed for forage crops is a field with few perennial weeds, firm soil, and moisture close to the surface. The three rules to remember when preparing a seedbed for forage seed are: 1) to pack the seedbed, 2) pack the seedbed, and 3) pack the seedbed. If your summer fallow was cultivated late last year or early this spring, you may have a very loose seedbed. This would require some harrow packing before seeding the forage crop. One advantage of seeding on a summer fallow field is the weeds should be under control, but don't assume there are no weed seeds left in the field. Since forage crops do not have to be seeded early in the spring, wait to get one flush of weed seeds to germinate before seeding the forage. Then burn off the weeds with glyphosate and seed the forage a few days later. Depending on what part of the province you farm, you may want to use a light cover crop. Do not use rye, or a full crop of barley, as they are too competitive.

One advantage of direct seeding into standing stubble is that you have a firm seedbed with moisture close to the surface. Here again you should burn off the first flush of weeds with a herbicide before seeding the forage. Some seeds from the previous crop will volunteer and compete with the newly emerging forage seedlings. The amount and density of the volunteer crop should be monitored throughout the growing season to prevent excessive competition. If competition from the volunteer crop becomes too great, it should be removed and utilized as a forage or silage crop.

*If I used Edge herbicide on my canola field last year, can I seed a grass- alfalfa mixture on that field this spring?*

Herbicides containing trifluralin and ethafluralin (such as Treflan and Edge) usually leave a residue in the soil for at least one year after application. This residue will not harm alfalfa seedlings but will interfere with most forage grass seedlings. There are several other herbicides which can leave a soil residue. Whether these residues will be a problem for seedling forages or not depends on a number of factors, such as rate of application, annual rainfall, the amount of organic matter, amount of tillage, soil temperatures, and soil pH.

As an example, residues of Lontrel can be hard on legume seedlings while Pursuit residues can be hard on grasses. For other possible problems, refer to the section on soil residual herbicides in the Guide to Crop Protection, available from Saskatchewan Agriculture, Food and Rural Revitalization.

*How much fertilizer can I put with the seed when seeding a grass and alfalfa mixture?*

This depends on the type of equipment that you seed with, whether using liquid or dry fertilizer, and how close the fertilizer is placed to the seed. The first place to begin is to get a soil test done on that field so you know if a deficiency exists. Legumes respond to phosphorus and sulphur, but if properly inoculated, they do not need extra nitrogen. Grasses respond mainly to nitrogen. Phosphorus does not move readily in soils, therefore on soils very deficient in phosphorus, a high rate of phosphorus should be applied and worked into the soil before legumes are seeded. A general guideline when seeding forage crops is not to exceed 15 pounds of actual phosphate and 25 pounds of actual nitrogen per acre preferably placed at least one inch away from the seed. The farther away the fertilizer is from the seed, the less likely newly emergent seedlings will be damaged.

*Should I fertilize a pasture field in the spring to increase productivity?*

This question is not as simple as it looks. There are a number of factors that would influence the answer. Do an inventory of what species of plants (both forage plants and weeds) are present in the field and the vigour of each species. The average annual rainfall in your area of the province will influence the response of your pasture to fertilizer. Other important factors include the texture of the soil, topography, and soil nutrient deficiencies.

When forage stands are only in fair condition, the use of fertilizer is only one of several management practices that can return the land to good condition over a short period. Some of the other practices that might help improve the condition of your pasture include weed control, mowing, insect and pest control, mechanical soil disturbance, burning, and controlled grazing. Some of these practices could be used together to improve the productivity of your pasture.

Nitrogen is the nutrient that has the biggest impact on forage yields. Adding extra nitrogen increases the growth and vigour of grasses but increases the competition between the grass and legume species. This could reduce the legume component in the forage stand. A compromise must be found where you manage for both species. Consider applying 50-60 lbs/acre of nitrogen and 25-30 lbs/acre each of phosphate, potassium and sulphur fertilizer, which will help maintain the health and vigour of the legume and grass in the stand.

*What is the best method to apply fertilizer on a hay or pasture field?*

The cheapest and easiest approach is to broadcast the fertilizer on the surface and then do a rain dance. This may not give the best response and is not recommended if you plan to use urea

fertilizer as it is subject to volatilization into the atmosphere. It may work fairly well for ammonium sulphate or ammonium nitrate fertilizers. Deep banding with a narrow knife or a coulter is a better, but more expensive approach. Liquid fertilizer fits well into this approach, as does liquid hog manure. A spoke wheel injector is available for liquid fertilizers. Anhydrous ammonia is not a good choice as the sod and soil surfaces do not seal adequately resulting in nitrogen losses to the atmosphere. □

### *How many gallons of hog manure can you put down on forages?*

One of the biggest concerns we all have is prevention of surface and ground water contamination. Forages are the best place to make use of hog manure because of the large sink offered by the massive root system of perennial forages compared to annual crops. In addition, perennial forages are actively taking up nitrogen and laying down carbon for a much longer period throughout the growing season.

Karen Bolton, “Manure Management Specialist” with Saskatchewan Agriculture, Food, and Rural Revitalization (SAFRR) in Regina, stated there are approximately 30 lbs. of N for every 1000 gallons of hog manure. About 85% of this N becomes available in the first year after application. Karen recommends that a soil test and manure analysis be performed to determine gallons per acre to apply before applications are made. **Example:** Your soil test indicates you require 100 lbs. of nitrogen (N) per acre on your forage stand to achieve maximum yield and you have 20 lbs. of N available in the soil now. Your hog manure analysis indicates you have 30 lbs. of N per 1000 gallons. We know that 85% of the N in liquid hog manure is available the first year. Then:  $100 \text{ lbs N/acre} - 20 \text{ lbs available N in the soil already} = 80 \text{ lbs. of N per acre is required, i.e., } 30 \text{ lbs N/1000 gallons of hog manure} \times 0.85 \text{ N available in the first year} = 25.5 \text{ lbs. N available/1000 gallon of hog manure}$ . Then divide  $80 \text{ lbs N per/acre required by } 25.5 \text{ lbs N available/1000 gallons hog manure} = 3.1$  or 3,000 gallons of hog manure required per acre to meet the N requirements of the forage crop this year.

### *What can I seed into an area that stays flooded about half of the time in summer?*

You might try seeding reed canary grass, creeping foxtail, or tall wheatgrass. Of these, tall wheatgrass is the most saline tolerant and least palatable. Tall wheatgrass can stand up to five weeks of spring flooding. Reed canary grass can withstand ponding of water up to two months. Creeping foxtail can stand flooding up to four weeks. Consult the Saskatchewan Forage Crop Production Guide.

### *What species should I seed in a saline area?*

You could seed any of several grasses in these areas, tall wheatgrass, slender wheatgrass, northern wheatgrass, western wheatgrass, Russian wildrye grass, and Altai wildrye grass. However, the general recommendation from Agriculture & Agri-Food Canada’s Swift Current Research Station is that you seed these areas with a mixture of forage and legume species.

Saline areas are often variable in the level of salinity throughout the area in question. Legumes such as alfalfa are high water use crops and will establish in the areas of low salinity, thereby reducing the high moisture levels often associated with these sites and increase the quality of the forage.

***What herbicide can I use to control volunteer Westerwold annual ryegrass?***

Your best bet is to control spring germinating seedlings with broad spectrum herbicides such as glyphosate (Roundup or Touchdown). Follow a crop of ryegrass with crops in which products other than group-1 herbicides can be used. Edge, trifluralin and Prowl will control ryegrass if the herbicide is incorporated. Kerb may be used in established alfalfa, bird's-foot trefoil and established pasture. If a group-1 type herbicide must be used, then use the 'dim' products such as sethoxydim (Poast) clethodim (Select) or tralkoxydim (Achieve), rather than a 'fops' such as diclofop (Hoe-Grass) and clodinafop (Horizon).

***What species can you mix with meadow brome for pasture use?***

It is generally recommended that you not seed mixtures (with the exception of saline areas where your main goal is to get the area covered) because they tend to be harder to manage and the problem then becomes one of determining for which species in the mixture to manage. However, in some of the more moist areas with rolling topography, you might want to add in timothy or slender wheatgrass. For intensive grazing, you could try adding crested wheatgrass, birdsfoot trefoil, or sanfoin. If you are into intensive management, you could go with alfalfa in the mixture, but keep in mind you are going to have to manage for bloat. "AC Grazeland", which was developed by Agriculture and Agri-Food Canada, is a bloat-reduced alfalfa that may be an option for grazing management systems.