

Questions and Answers on Galega

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What is Galega?

- Galega (*Galega orientalis*) is a perennial forage legume from the Scandinavian countries though the plant is reported to be a native of the Caucasus region (located at the border of Europe and Asia, on the peripheries of Turkey, Iran and Russia between the Black and the Caspian seas). It has light green dense canopy, its leaves are larger than alfalfa and its stem is hollow and much softer than alfalfa. Its beautiful violet blue flowers have good quality nectar that attracts honeybees. Gale is the only variety of Galega in cultivation.

Is it better than alfalfa?

Yes! Galega;

- Gives nearly 1 MT/ha/year higher dry matter yield than alfalfa.
- It has higher protein content than alfalfa in the first cut. If alfalfa has 20-22 % protein Galega will have 24-26 % protein. However, in the second cut the protein content in alfalfa and Galega is the same.
- Is also rich in carotenes, minerals and vitamins, especially vitamin C. It is low in toxic alkaloids. Unlike alfalfa, it has no bloat problem when fed green to livestock.
- Feed quality in Galega, due to its dense and long retained canopy and relatively softer stem (that makes it more palatable) doesn't come down as quickly as in alfalfa after the first bloom (due to delay in harvesting). Thus overall, it makes a very good quality feed for livestock, especially for dairy cows.
- Has higher persistence than alfalfa that often becomes poor in stand and strength after 3-4 years. Galega plots seeded by us in 2011 at the Thunder Bay Agricultural Research Station (TBARS), Thunder Bay are still having a dense stand, whereas the adjoining alfalfa plots have thinned out. In its natural stands (forest meadows), Galega has been reported to persist for 10-30 years!
- Can smother tough weeds such as dandelions.
- Is more winter hardy than alfalfa. Alfalfa is usually killed by a killing frost, whereas Galega would survive at that low temperature!
- Is early to grow in the spring and its growth rate is faster than alfalfa. As a result, Galega is ready for first cut a week earlier than alfalfa.
- During 2006-'09 and 2011-'17 we didn't notice any insect pest or disease in Galega. Alfalfa, as we all know, isn't free of insect pests and diseases.

Any other plus point of Galega?

- It could be used for bioremediation of oil polluted soils; some of the bacteria hosted by Galega could degrade pollutants such as toluenes.
- Galega could also produce good amounts of biogas especially if mixed with grasses and manure.
- Galega (flowers) could be a delight to the gardeners.

Any down side?

- Galega isn't good at taking competition from weeds or companion crops in its early establishment stage. Weeds can over grow Galega even though its ability to compete with weeds improves with the canopy development and it will survive under weedy conditions. However, establishing Galega could be a challenge in weedy fields; especially in fields infested with herbicide(s) resistant weeds.
- There is no recommended herbicide for weed control in Galega.

What is the solution then?

- Seed Galega alone (without any companion crop).
- Prefer fields that had cereals/or grain legumes in the previous year.
- Spray Round Up to kill perennial weeds in the fall before seeding in spring.
- Prepare fields in the spring, allow the weeds to emerge, kill the weeds with Round Up spray and then seed. Alternatively,
- Seed a 60 days annual hay crop in spring (by then weed pressure will come down) and then seed Galega after land preparation; preferably after killing the emerged weeds with Round Up.

Are there alternative strategies to using a Round Up burn off which is not something that organic farmers would be doing?

- Allow the weeds to emerge and kill them by cultivating once or twice or burn the weeds by fire; the latter is resorted to by some organic farmers though I don't know how they do it. Alternatively,
- Wait till weeds come to bloom; mow them and then direct seed Galega into it under good soil moisture conditions ensuring proper seed to soil contact. If you see regrowth in weeds, mow them again after Galega is 4-5 cm tall, but make sure that you don't cut Galega. However, I may caution you that this aspect has not been researched by us and the recommendations come out of my common sense.

What type of soils are good for Galega cultivation?

- Galega has been reported to perform best on deep, loamy and well drained friable soils though it could be grown on a wide variety of soils. We had Galega flourishing well in our slightly acidic to neutral tile drained clay loam soils at TBARS, Thunder Bay.

Will it produce under wet and dry conditions?

- We have experienced wet seasons and Galega grew well even in wet conditions (our plot ranges are tile drained though). We have experienced short spells of dry weather (though not the entire season dry) and Galega grew well under those conditions too!

Can it be grown outside northwestern Ontario?

- Yes! Some 15-20 farmers have seeded Galega all over Ontario in 2017.

Can Galega and alfalfa be grown together in a mixed cropping system in the same field?

- No! We tried seeding the two together and were surprised to see not even a single plant of Galega emerging in/and growing along with alfalfa. It seems that alfalfa had a very

strong allelopathic effect on Galega. Due to this reason, I would be reluctant to recommend growing Galega in ripped off fields of alfalfa.

What is the Galega seed source, seed cost and how much seed rate is recommended?

- Galega seed has to be imported from Europe. Thunder Bay Feeds, Thunder Bay (Tel: 807-935-2921; email: info@thunderbayfeeds.com) are the seed supplier of Galega. Check with them for seed availability and seed cost.
- Seed @ 10 kg/acre (= 25 kg/ha) if you are aiming to keep the Galega stands for 3-4 years. If you are planning to keep it longer, seeding @ 14 kg/acre (= 35 kg/ha) is recommended. Galega seed is a lot bigger (2.5-4.0 mm long, 1.7 – 2.0 mm wide) than alfalfa seed; hence its seed rate is higher than that of alfalfa.
- *Don't compromise on the seed rate! Even 5 kg/ha reduction in the seed rate (from 25 kg seed/ha) could lower the dry matter yield significantly.*

Should the seed be inoculated before seeding?

- We have been getting a bumper crop of Galega without seed inoculum. However, it could be inoculated with a symbiotic bacteria (*Rhizobium galegae*).

Could Galega be direct seeded without tillage?

- Since Galega has a hard seed coat, I would prefer to seed it after land preparation. Moreover, we didn't try it direct seeding.

What is the optimum seeding depth for Galega?

- 6-12 mm in clay and loam soils, and 12-18 mm in sandy soils.

How late one can go for seeding Galega?

- One of our member farmers seeded Galega in mid July 2017 and it came up well. Thus you could seed it as late as mid July in northern Ontario and even later in southern Ontario.

How much fertilizers should be applied to Galega?

- Apply same amounts of P and K as you would apply to alfalfa based on soil tests. Apply 24 kg sulphur/ha in the seeding year and 36 kg sulphur/ha in the established years through ammonium sulphate. Supplement ammonium sulphate with urea to a total amount of 45 kg N/ha in all the years. Also add 1-2 kg boron/ha to the fertilizer mix every year. If soil test shows deficiency of other nutrients (such as manganese and zinc), add those as well.

Should it be grown for hay or for silage or pasturing?

- It could be grown as hay or silage. It has better retention of leaves after harvesting and drying for hay than alfalfa. It could also be pastured.

What about haylage in plastic wrap?

- I believe it can be done. We haven't tried it ourselves, but a Thunder Bay producer has done it successfully and he seems to be happy about it.

Can Galega be fed to small ruminants such as sheep and goats?

- Yes! I guess sheep and goats would relish Galega more than alfalfa.

When to harvest Galega and how many cuts one can take every year?

- Don't harvest Galega in the seeding year!
- Harvest when you see a few plants blooming.
- Due to its early start in the spring, Galega is ready for harvesting a week before alfalfa.
- Cut twice in the northwestern Ontario (total dry matter yield spread is 55 % in the first cut and 45 % in the second cut; more or less the same as in alfalfa.), up to 3 times in northeastern Ontario and 3-4 times in southern Ontario and Quebec (same number of cuts as alfalfa).

Any Farmer Contact?

- Peter Aalbers (Tel: 807-939-1644; email: aalbersdairy@tbaytel.net) who seeded Galega and alfalfa side by side in 40 acres each in 2015 and is planning to expand his acreage under Galega in 2018.
- Bernie Kamphof (Tel: 807-935-3344; email: bernie@kamdale.com) who under seeded Galega in barley for silage in spring 2017 and also as a sole crop in mid July 2017.

Adding Galega to your cropping systems will be economically rewarding and will be better for the livestock and the soils! Any further questions? Ask tarloksahota@tbaytel.net.

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