

# Observational study of livestock acceptance of feeding sweetpotato vines

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## Sweetpotato Vines

Sweetpotato vines can be used as a protein feed for livestock especially where grasses are commonly grown as the main feed source. Grasses provide less protein than the animals require, and availability tends to be scarce during the winter months. Sweetpotato vines can be fed fresh before they deteriorate in nutritional value. The leaves and vines contain a high amount of soluble dietary fiber, a high number of amino acids, and minerals that are essential for the proper development of livestock.

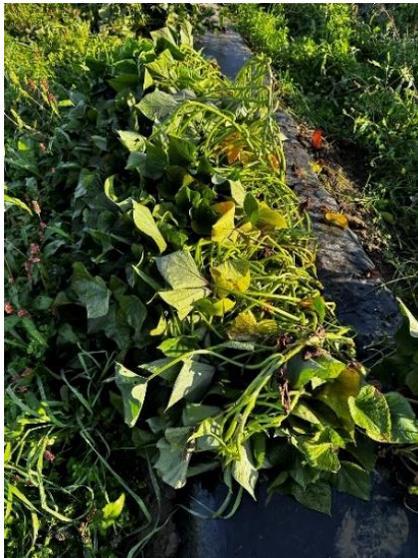


Figure 1. Sweetpotato vines in the field.

## Harvest and transportation

A sweetpotato variety trial was planted at the Washington State University Northwestern Washington Research and Extension Center (WSU NWREC) on June 4, 2024. Sweetpotato vines were harvested in early October (Fig. 1). At time of harvest, the vines were heavy due to their high moisture content and heavy dew. Vines were cut at the soil surface and around 500 pounds of vines were loaded into a trailer

and transported 9 miles to a farm in Mount Vernon owned by Mr. Wayne Hill, for this livestock feeding test (Fig. 2).



Figure 2. Trailer loaded with the sweetpotato vines and ready to leave the field.

## Feeding the Sweetpotato Vines

The trailer with sweetpotato vines arrived at a pasture area where the farm's animals had free



Figure 3. Livestock first reach to the loaded trailer with the sweetpotato vines.

access to a pasture mix, canary grass, and water (Fig. 3). One horse, two Scottish Highlander cow-calf pairs, one Scottish Highlander heifer, and one goat were in the pasture. Overall, it took less than thirty seconds for all the animals to reach the trailer and start sniffing the

sweetpotato vines. Their feeding behavior was recorded for 2 hours. The same day the sweetpotato vines arrived in the pasture, late evening time, a Scottish Highlander bull was introduced into the herd.



*Figure 4. Horse and cow reaching with interest minutes after the loaded trailer arrived in their pasture.*

The horse was very interested in the trailer with the sweetpotato vines when it arrived at the pasture, but after a few sniffs and some bites, he lost interest and moved away (Fig. 4).

The goat is the recognized alpha animal of the group and also the oldest of all the animals. The goat was one of the first animals to approach the trailer and one of the last to move away. As a highlight, its feeding behavior showed preference only for the sweetpotato leaves; it ate the leaves off the vines, leaving the vines hanging from the trailer (Fig. 5).



*Figure 5. Goat reaching just for the sweetpotato leaves.*

Around 16 hours after the trailer arrived, on October 4, Mr. Hill took a photo of the trailer when he went to check on the animals and it was empty (Fig. 6).



*Figure 6. Livestock leaving empty the trailer after 16 hours of feeding the sweetpotato vines.*

It is of special note that despite a new bull arriving in the pasture area the same evening as the sweetpotato vines arrived, the feeding behavior of all the animals remained strong, including for the new bull. It is generally expected their eating behavior would decrease due to stress

from being transported, entering a new herd, and from modified commingling.

### **The farmer**

Mr. Hill was born and raised in Skagit County; he is a fourth-generation farmer (Fig. 7). His great-grandparents came from Sweden and settled here, and his family has been farming ever since. He is a second generation working for Sakata Seed America, Inc. (Burlington, WA), where his mother also worked. His family had a beef farm in the 1920s and 30s, and the last cow left the farm in the 1960s. His family became crop farmers, and eight years ago he started raising pheasants, which was profitable but a lot of work. In 2019, he and his wife decided to stop raising pheasants and they purchased three goats to clean the land. Next, they purchased two Scottish Highlander cows and a one-year-old heifer, that turned three years old the day before we did the sweetpotato vine feeding test.



*Figure 7. Mr. Wayne Hill, Skagit County local farmer, next to his horse*

They are now in the process of breeding the cows and temporarily keeping a bull for this purpose. The long-term goal is to

produce beef, but for now, they raise the cows essentially as pets, which has a large market opportunity. They can easily sell the cows as pets and make just as much money as with beef, without having to slaughter the animals.

Mr. Hill enjoys raising his livestock, and a very special memory for him was how special it was for his father to see the cows on the farm before he passed away last spring. “It was fortunate because he remembered when the last cows left the farm, so he was pretty excited. I’ve been seeing again the land used like it used to be”. Mr. Hill’s previous experience with animals has been mainly with horses, and he has only had cows the last two years. The cows have been a learning experience for him and his family. From his experience, Highlanders are very easy to raise, though they are slow to gain weight compared to other breeds. So far, the only issue he has experienced with the cows has been flies this year, but no diseases as yet. Overall, the Scottish Highlander herd has been very mellow and easy to raise. The animals are mainly fine as long as they have grass available. From November until March, they will start feeding silage bales, until the grass starts to grow again.

### **Institutional Review Board Statement**

This research is exempt from the IACUC review.

### **Acknowledgments**

Special thanks to Mr. Wayne Hill for opening his doors so we could do this test. Thank you for your time and all the useful information you shared that helped us describe your farm and livestock. Thanks also to Don McMoran, Director of the WSU Skagit County Extension office, for connecting us with Mr. Hill.