

FEEDING SUGAR BEET BY-PRODUCTS

E. J. Maynard - Maynard Brokerage Company, Billings, Montana

The sugar beet crop is a dual purpose crop. In addition to sugar it provides by-products which have been largely responsible for the development of a successful livestock feeding industry and greatly increased fertility in this intermountain country.

These beet by-products represent an integral part of the crop and the returns in form of added fertility for the farm and meat, wool or milk for market should be more clearly established and counted in if the entire value of the crop is to be recognized and fully appreciated. Recent findings have indicated added values for these beet by-products when conserved properly and used with proper mineral supplements.

With present harvesting and feeding methods beet tops suffer tremendous losses in feeding value from topping time on. We have rather definite indication that the use of certain minerals such as calcium carbonate, lime cake or chalk tends to improve their feeding value. Siloing of tops reduces their oxalic acid content to a mere trace. All beet by-products, tops, pulp and molasses are very deficient in phosphorus and in livestock rations containing a large proportion of beet by-products the use of a phosphorus supplement will greatly increase their nutritive value.

In one experiment at the Utah Agricultural Experiment Station the addition of such a supplement to a pulp, molasses and alfalfa ration actually doubled gains secured on cattle and cut costs of gain in half.

Wet beet pulp has for years been the foundational cheap and efficient feed that has made it possible for intermountain feeders to compete successfully with the corn belt. Today the demand for pulp has become so strong that the average beet grower no longer has sufficient in his allotment to depend on it alone for cheap gains. We need to develop a new standard beet by-product ration based on acre yields of beet by-products and including crops suitable for each individual beet grower's use.

By-products from an average acre of sugar beets if properly conserved and fed are equal in feeding value to the entire product from an average acre of corn. Sugar beet by-products conserved and fed properly with grain and alfalfa hay will produce cheaper beef and lamb than any other ration available in the United States, not even excepting the combinations fed in the corn belt.

According to figures presented by Morrison in his 20th edition of "Feeds and Feeding," 64.9% of the dry matter in tops at topping time is digestible. Results secured by the Colorado Agricultural Experiment Station indicate that sugar beets yield 66.5% of their weight in tops containing 20% dry matter, or 19% of their weight in tops containing 70% dry matter. On either basis a 12 ton yield of beets would produce 3192 lbs. of dry matter in tops which at topping time contained, according to Morrison's figures, 2072 lbs. of net units of feeding value (t.d.n.)

A ton of alfalfa hay contains 1066 lbs. of t.d.n., a ton of barley 1574 lbs. In other words these tops from 12 tons of beets, at topping time,

contained feed nutrients equivalent to the net fattening value in 2 tons of alfalfa hay of 1.3 lbs. of barley. Similarly the feeding value in tops, at topping time, from an 18 ton yield of beets would be equivalent to that in 3 tons of alfalfa or two tons of barley.

On this basis tops at topping time actually contain more than 3 times the net feeding value available in the beet pulp produced from the same beets.

Recent tests made by Mr. D. J. Roach, Nebraska District Supt. for the Great Western Sugar Company, indicate that 22 ton beets there produced 200 lbs. of dry matter per ton of beets produced when the tops were hauled and carefully dried. Based on Morrison's figures these tops contained 2856 lbs. of t.d.n. or 130 lbs. per ton of beets produced.

There has been little improvement in conservation methods of handling tops since the industry started yet we know that tops are much more digestible than alfalfa hay and consequently more highly perishable. Under present conditions their highest feeding value is secured by using them as quickly as possible after harvest yet this plan often reduces returns by prohibiting the use of a uniformly balanced ration throughout the feeding period. Today, tops are pastured in the field or gathered into small piles and pastured, or fed in the feed lot. In some instances tops are stacked alone or with alternate layers of hay or straw and a relatively higher feeding value is secured. They are sometimes put up green as beet tops silage but being rather high in protein they are, in this form, subject to the disadvantages generally encountered in any high protein silage.

What is the answer? They might be dehydrated and ground up, even mixed with alfalfa hay and pelleted as is being done by one concern in Montana today but is such expense justified? -- and if so, how could that be accomplished on the average beet growers farm? Apparently some plan must be developed that will conserve their value at a low cost and before it is largely lost and that will enable them to be combined with suitable feeds for highest returns. The problem of labor in handling must be kept in mind for the fall season is a busy time for the beet grower.

The following plan, suggested by Mr. D. J. Roach, offers one possible solution with a practical "ring." This involves the siloing of fresh green tops with corn fodder. With such a system it is estimated that on the average 160 acre farm enough feed could be produced on 115 acres to fatten 100 head of cattle for 200 days or to fatten 1400 lambs for 120 days. This would require the tops from 40 acres of beets, (17 ton yield) 15 acres of field corn, barley from 40 acres and alfalfa from 20 acres. The plan would entail harvesting the corn when mature in September and ricking it up alongside a trench silo, then cutting it into the silo with the green tops as soon as possible after the beets are topped, mixed at an approximate rate of 70% green tops and 30% corn fodder. The above mentioned crops with a normal allotment of wet pulp should produce 480,000 lbs. of dry matter, sufficient to provide 24 lbs. per head for 100 steers for 200 days. The ration would consist of 55 to 60 lbs. of the silage, 20 lbs. of wet pulp, 5 lbs. of barley and 6 lbs. of alfalfa, a complete home grown ration. The only supplement needed would be 1/10 lb of bone meal per head per day to correct the phosphorous deficiency.