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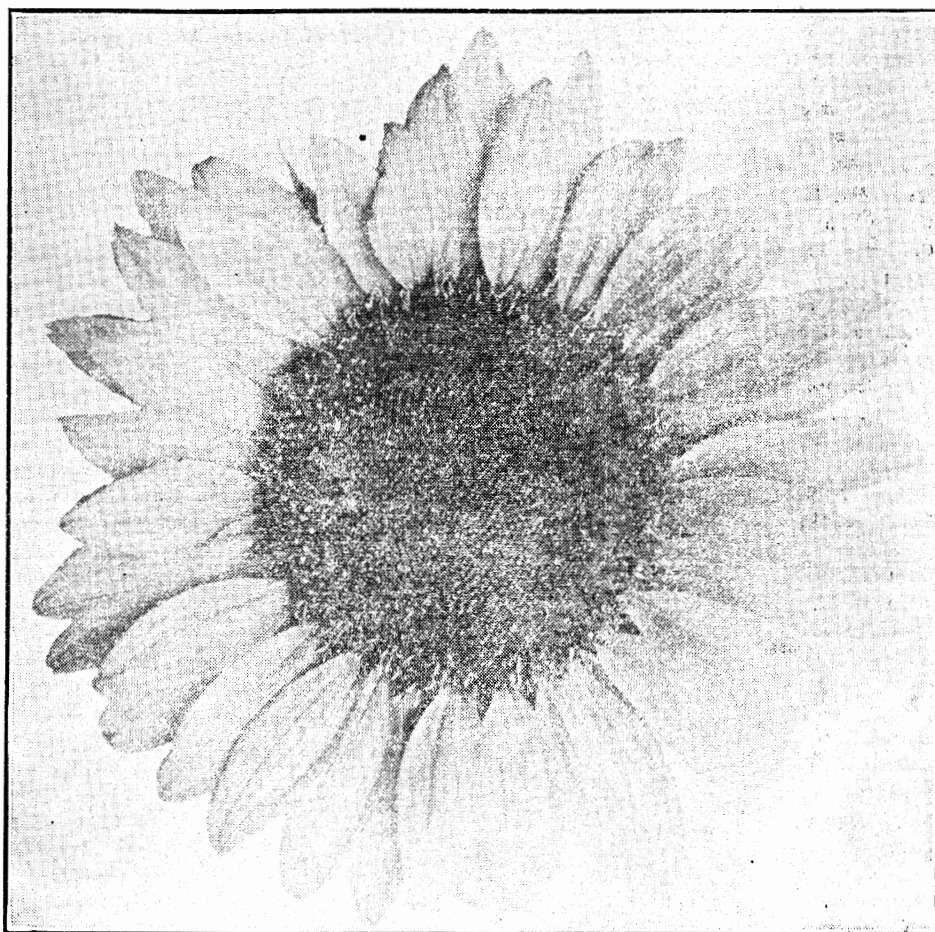
AGRICULTURAL EXPERIMENT STATION
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CATTLE FEEDING INVESTIGATION

W. L. BLIZZARD



Comparison of Results in Fattening Calves on a Ration of Sunflower Silage, Ground Corn, Cottonseed Meal and Alfalfa Hay with Results of a Ration Containing Darso Silage, Ground Corn, Cottonseed Meal and Alfalfa Hay.

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CATTLE FEEDING INVESTIGATIONS

BY W. L. BLIZZARD

FINISHING BABY BEEF

A question which has been asked a good many times thru inquiries to the Animal Husbandry Department of the Oklahoma Agricultural Experiment Station, has been what about "Sunflower Silage" and its adaptibility to beef production for Oklahoma.

Upon the recommendation of Dean Knight, Director of the Experiment Station, ten acres on the college farm were planted to Russian sunflowers in the spring of 1919 with a view to putting them into the silo. This was accomplished and the results of the feeding test are herewith given.

Feeding Plan. The fourteen calves used in this experiment were purchased from the U. S. Indian School at Chilocco, Oklahoma. The calves were out of high grade Shorthorn cows and sired by registered Hereford bulls. The calves were selected as near as possible for uniformity of type, quality and feeding capacity. They were calved the spring before, weaned in October and were being fed at this time on silage and hay. The calves were shipped to Stillwater, where they were vaccinated for blackleg and put on feed immediately.

Object of Experiment. (1) To determine the comparative feeding value of Sunflower silage and Darso Silage for finishing baby beef.

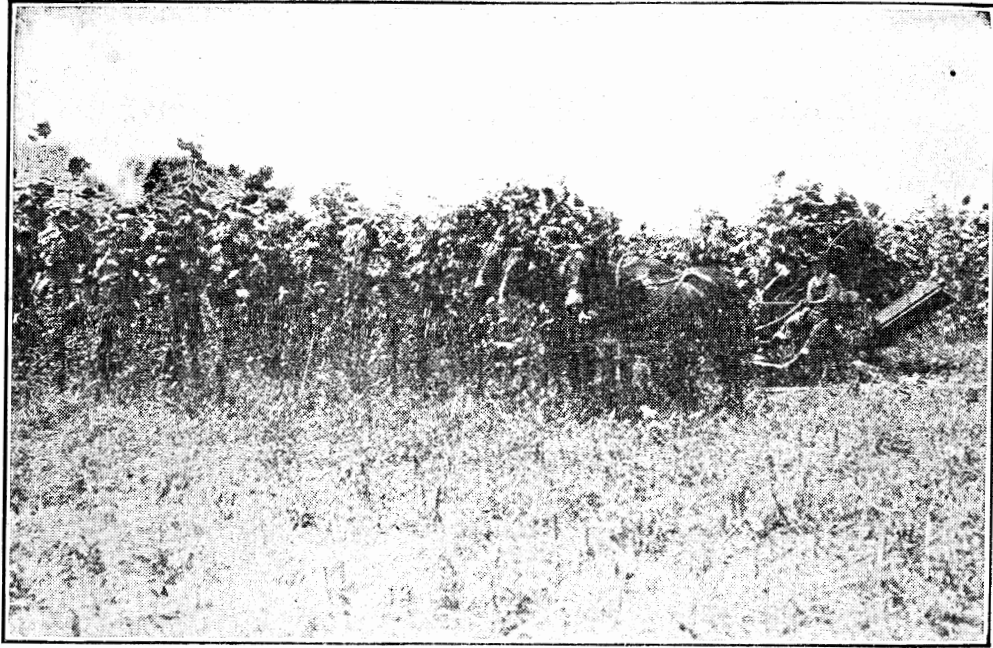
(2) To determine the value of Sunflower silage for fattening baby beef.

Rations Fed. Lot I, Sunflower silage, ground corn, cottonseed meal and alfalfa hay.

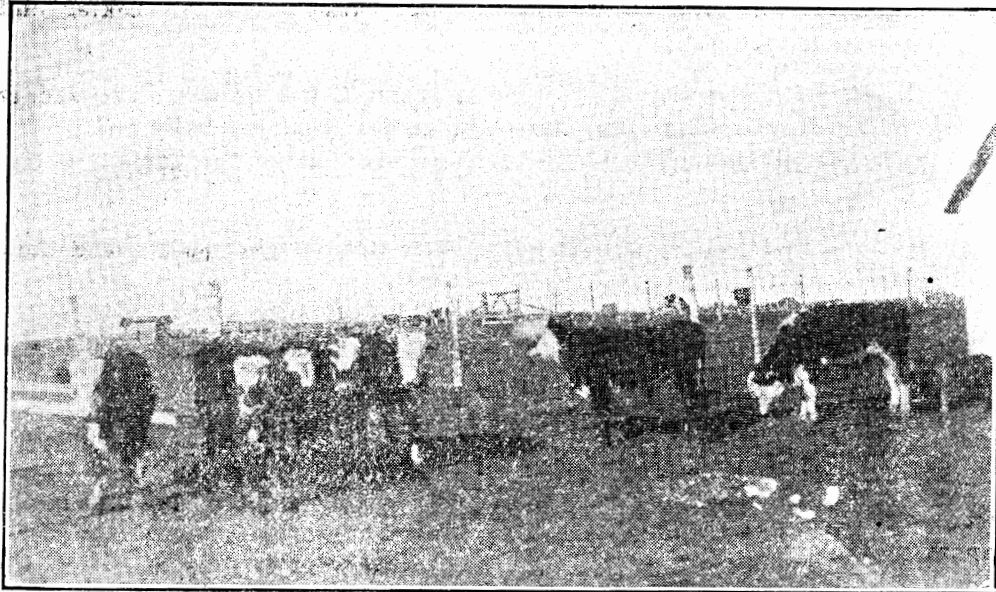
Lot II, Darso silage, ground corn, cottonseed meal and alfalfa hay.

Calves were weighed 3 days in succession at beginning and at close of test and also every 30 days intermittently.

Sunflower Silage. The sunflower silage was made from Russian tame sunflowers. The sunflowers were planted the forepart of April. They were planted in rows 30 inches apart with a corn planter, about 6 inches apart in row. These sunflowers were grown on rather poor upland where kafir and corn burn out every year. The third week in July, the time they were put into the silo, the heads were passing from the milk stage. They were harvested with a corn binder, hauled to the silo and cut in the usual way. There was considerable sap in the stalk and milk in the head. However, some water was added. They yielded about 5 tons per acre.



Russian Sunflower Being Harvested for Silo on College Farm.



Calves in Lot One at Beginning of Feeding Test.

The silage packed much tighter than either darso, cane or corn. There was a little hesitancy at first on the part of the calves to take to the silage, but it did not last long, and once started they never missed a meal. The calves receiving the darso silage seemed to reach their capacity much quicker than those being fed on sunflower silage.

***Average Percentage Composition**

	Water	Ash	Protein	Fibre	N. free ext.	Fat
Sunflower silage	71.96	3.23	2.96	8.67	12.36	0.81

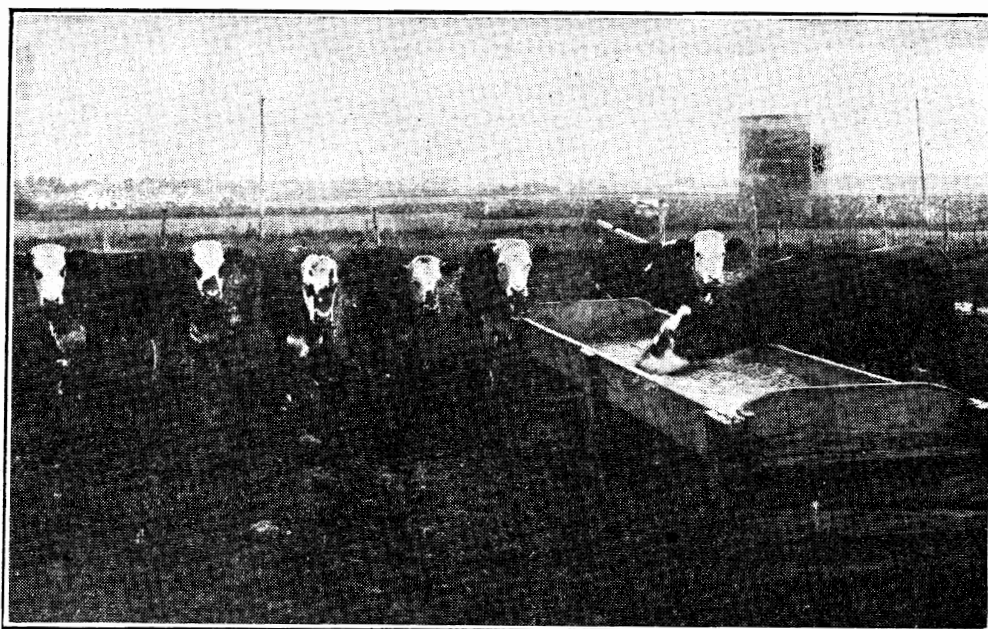
Darso Silage. Darso is a new sorghum developed and named at the Oklahoma Experiment Station. Its origin is unknown. It is probably a cross between a non-saccharine sorghum and a saccharine sorghum. It is a dwarf plant about 4 feet in height, heavily foliated, with large stalks that are usually tinted with red. It is very uniform in height and in shape and color of heads. The forage contains a higher percentage of total sugars in the juice than does black hulled white kafir or feterita. Darso is early maturing, drought-resistant, uniform in height and yields rather a heavy foliage.

The darso silage was made from darso and yielded rather a heavy tonnage. It ordinarily has a tonnage similar to kafir. Cattle like it and it keeps well in the silo.

***Average Percentage Composition**

	Water	Ash	Protein	Fibre	N. free ext.	Fat
Darso silage	73.11	1.54	1.91	6.46	16.65	.34

*Analysis furnished by Dr. C. T. Dowell, Station Chemist.



Calves in Lot One at Close of 150-Day Feeding Test.

Results or Peculiarities Noted During Feeding Period. Lot I reached their capacity for silage on the 19th day, but when the amount was decreased they seemed to eat as readily as Lot II.

The calves ate sunflower silage with relish and it had no bad effects other than causing an apparent increase in urine secretion and a slight tendency to scouring. The scouring was not enough to cause any bad effects.

The droppings from Lot II showed considerable grain at the end of 20 days, while the droppings from Lot I showed very little grain during the first 30 days and never did at any time show as much grain as Lot II.

On March 5 a swelling on the jaw of steer No. 74 in Lot II was opened by the veterinarian. On March 12 he seemed to be quite stiff, but did not go off of feed or suffer any bad effects. The swelling had entirely disappeared before the close of the feeding period.

Lot I ate more salt during the feeding period than Lot II. During the last 50 days three of the steers of Lot I were slightly bloated at different times. They ate regularly even while bloated. Did not seem to gaunt or scour.

The hogs in Lot II were more nearly satisfied and showed larger gains than those in Lot I.

During the entire feeding period none of the steers were off of feed and were fed all they would clean up regularly.

Cattle Feeding Test

Table showing results of feeding test 150 days, January 16 to June 17, 1920.

Lot number	I		II	
	150 days		150 days	
Length of feeding period.....	7 grade Herefords		7 grade Herefords	
Number head in lot.....	2996 lbs.		2971 lbs.	
Initial wt.	428 lbs.		424 lbs.	
Avg. initial wt.	5348 lbs.		5382 lbs.	
Final wt.	763 lbs.		769 lbs.	
Avg. final wt.	2377 lbs.		2411 lbs.	
Total gain	335 lbs.		345 lbs.	
Gain per head	2.24 lbs.		2.29 lbs.	
Avg. daily gain per head.....	\$ 36.71		\$ 36.43	
Initial cost per head.....	\$257.00		\$255.00	
Initial cost per lot.....				

Amount and Cost of Feed Consumed

	Per head per day		Total per lot		Total cost per lot	
	Lot I	Lot II	Lot I	Lot II	Lot I	Lot II
Corn	11 lbs.	11 lbs.	11528 lbs.	11528 lbs.	\$335.11	\$335.11
Cotton seed meal	1.07 lbs.	1.07 lbs.	1121 lbs.	1121 lbs.	\$ 40.35	\$ 40.35
Sunflower silage.	13 lbs.		13724 lbs.		\$ 54.89	
Darso silage		13 lbs.		13724 lbs.		\$ 54.89
Alfalfa hay	2 lbs.	2 lbs.	2086 lbs.	2086 lbs.	\$ 26.07	\$ 26.07

	Lot I	Lot II
Labor	\$ 37.50	\$ 37.50
Total cost per lot, Stillwater.....	750.92	748.92
Cost per 100 lbs. gain.....	20.77	20.48
Net pork produced	15.87	29.80
Necessary selling price without pork.....	14.04	13.91
Necessary selling price with pork.....	13.74	13.36
Actual selling price, Kansas City market.....	15.50	15.50
Net weight by lot, Kansas City market.....	5310 lbs.	5230 lbs.
Avg. wt. per head, Kansas City.....	758.57 lbs.	747.14 lbs.
Shrink, per head	5.3 lbs.	21.5 lbs.
Dressing per cent	52.54	54.78
Interest per calf on investment at 8 per cent.....	\$ 3.57	\$ 3.56
Shipping and selling expense per calf.....	5.10	5.10
Total price per lot, Kansas City market.....	824.05	810.65
Total cost per calf at Kansas City market.....	115.95	115.66
*Selling price per calf at Kansas City market.....	117.72	115.80
Net returns per calf.....	1.77	.14
Hog returns per calf.....	2.26	4.25
Net calf returns plus hog returns.....	4.03	4.39
Total profit per lot without pork.....	12.39	.98
Total profit per lot including pork.....	23.26	30.78

*Cattle sold to Drovers Packing Company, Kansas City, Mo., June 21, 1920.

Cost of Feeds

Corn, 1st 120 days.....		\$ 1.57
last 30 days		1.80
Cotton seed meal	\$ 72.00 per ton	
Alfalfa hay	25.00 per ton	
Silage	8.00 per ton	

SUMMARY

The results of this investigation indicate:

- (1) Sunflower silage when combined with corn, cottonseed meal and alfalfa hay has proven to be a most important cattle feed in producing beef.
- (2) Sunflowers will be an important crop in the future in making beef on Oklahoma farms, especially on the poorer kinds of land.
- (3) Darso silage when combined with corn, cottonseed meal and alfalfa hay also proved to be practically as good as sunflower silage for making beef.
- (4) Hogs following calves fed on darso silage made more pork; this was probably due to the large amount of grain present in darso silage.
- (5) The cattle receiving sunflower silage made a remarkable ship, shrinking only 5.33 lbs. per head, while those receiving darso silage showed a shrink of 21.5 lbs. per head.
- (6) Lot II, receiving darso silage, made an average daily gain of .05 lb. per head more than Lot I, receiving sunflower silage.

ACKNOWLEDGMENT

Credit is due H. M. Garlock, senior student, who had charge of the feeding, whose careful attention to details helped to make this experiment a success.

