AGRICULTURAL EXTENSION SERVICE

State of North Carolina

ANNUAL REPORT
1 9 4 3

Period covered December 1, (Month) 19 4 2 to December 1, (Month) 19 4 3

Name of project: ANIMAL HUSBANDRY - BEEF CATTLE, SHEEP AND WORK STOCK

Covering work done by L. I. Case

D. C. Snodgrass

Percentage of time devoted to project: Full time - L. I. Case; 4 months - D. C. Snodgrass.

Date submitted: _____, 19 ___. Signed: _____
Project Leader

Date Approved: _____, 19 ___. Signed: _____
State Director of Ext. Work

Date approved: _____, 19 ___. Signed: _____
Director of Extension Work
U. S. Dept. of Agriculture

1943

ANNUAL REPORT

OF

EXTENSION WORK IN ANIMAL HUSBANDRY

IN

NORTH CAROLINA

By: L. I. Case, In Charge
Animal Husbandry Extension.

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INTRODUCTION

The 1943 Plan of Work was made with the war and needs caused by the war uppermost in our minds. The production of more meat, more wool and the saving of these products, together with better conditioned work animals were given emphasis and long range demonstrations were de-emphasized. Cooperative sales of breeding stock and slaughter animals and wool were encouraged with the thought that both time and travel would be conserved by this means.

The year has been a trying one for livestock producers and anyone connected with this phase of agriculture. War time restrictions, red tape, feed shortage, transportation difficulties, all have been such a source of worry to producers and have consumed so much time that many have become discouraged.

Cattle and sheep numbers have increased during the year. Feed shortage, and especially the difficulty in obtaining protein supplements, has decreased the number of cattle fattened in the feed lot but has increased the total poundage of low grade beef placed upon the market.

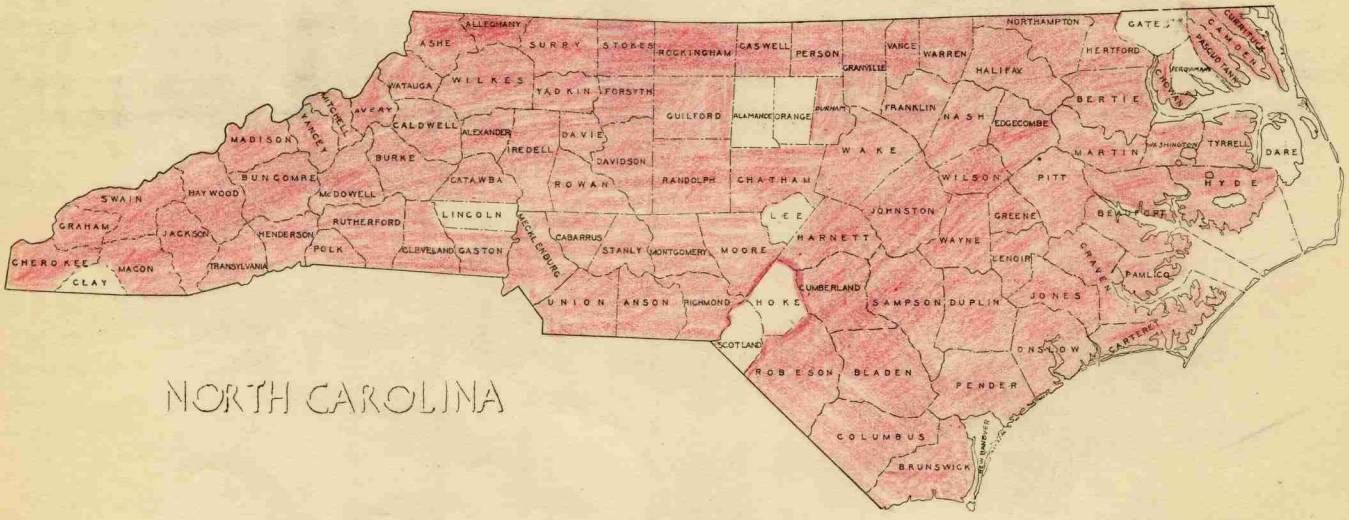
Beef Bull Placements

Beef bull placements were about the same as last year but females continued to show a marked increase.

Summary of Bull and Female Placements

1936 - 1943 1944

Year	Bulls	Females
1936	160	161
1937	178	211
1938	185	325
1939	351	936
1940	508	909
1941	444	1140
1942	596	1550
1943	590	1740
1944	515	1607



NORTH CAROLINA

Counties in which agents assisted farmers in obtaining purebred Beef Type Bulls in 1943.

Review of Purebred Sales 1943

Breed	Date	Place	Bulls	Females	Total	Ave. Price
Hereford	Apr. 16	Wilson	16	32	48	$510.00
Hereford	Sept.24	Boone	18	47	65	293.00
Hereford	Oct. 21	Statesville	10	52	62	373.00
Hereford	Oct. 23	Clyde	26	46	72	259.00

Fattening For Market. Adult

As already stated feed shortages, price ceilings, threats of ceilings, roll backs and what have you, had a discouraging effect on the cattle producer and smaller numbers were placed in the feed lots than usual. Favorable prices, however, in the early part of the year sent many warmed up cattle to the butcher. Then too, closer culling and de-emphasis on high finish put more than the usual number of cattle on the market so all in all more pounds of beef went to market than is generally the case.

Baby Beef Production. 4-H Club

The number of steers fed out and marketed in the spring of 1943 was smaller than usual due to uncertainties regarding shows, etc. A patriotic appeal to boys and girls, however, resulted in more than the usual number in the latter half of the year. Total numbers, therefore, for the year were larger and reports from county agents showed 620 club members completing Baby Beef Projects involving 736 head of steers. Our records of three spring and four fall shows and sales show that our young folks placed on the market 152 head of steers, weighing a total of 130,703 pounds and selling for $28,112.46.

A record is given below of the exhibitors of the Grand and Reserve Champion steers at the various shows together with the county, breed, weight, selling price and buyer:

Report of Sales of 4-H Club Steers 1943

Rocky Mount - April 1 and 2.

Sullivan Fisher,	Nash	Angus	1190	$30.50	per	cwt.	Carolina Packers, Smithfield
Mary Speight,	Bertie	Hereford	1170	23.00	"	"	Z.B.Bullock, Rocky Mt.

Kinston - April 8 and 9.

Robt. Johnson Jr.,	Lenoir	Hereford	930	50.00	"	"	King Bee Cafe, Jacksonville
Ivan Lassiter,	Johnston	"	825	36.00	"	"	Kinston Mkt'g. Co., Kinston

Lumberton - April 15.

J. C. Rawls,	Robeson	Hereford	982	52.00	"	"	L.Merchants Assn., Lumberton
Douglas Kinlaw,	"	"	994	31.00	"	"	L.Trading Company, "

Guilford County - Oct. 8.

C. B. Gamble,	Guilford	Hereford	780	34.00	"	"	Big Star Store
Robt.Flake Shaw Jr.	"	"	805	26.00	"	"	" " "

Durham County

Ernest Stokes,	Durham		600	19.75	"	"	Washington Duke Hotel, Durham
Harry Harrison,	"		1080	18.50	"	"	Colonial Stores, Inc.

Dunn - Oct. 8

Theo. Smith,	Harnett	Hereford	1025	21.00	"	"	M. F. Hodges, Dunn
Harold Smith,	"	"	1135	20.00	"	"	Colonial Stores, Inc.

Elkin - Oct. 14 and 15.

Tom Vannoy,	Watauga	Hereford	820	40.00	"	"	Neaves, Cooley, Poindexter
Lynn Templeton,	Iredell	"	940	25.00	"	"	Elkin Jr. Chamber of Commerce

Asheville - Nov. 3 and 4.

Wayne Stamey,	Haywood	Hereford	800	50.00	"	"	Geo.Vanderbilt Hotel, Asheville
Wayne Stamey,	"	"	760	36.00	"	"	Champion Fiber Co., Canton

SUMMARY OF GRADES AND PRICES AT FAT CALF SHOWS - 1943

4-H and F.F.A. Steers (adult steers not included)

Spring Shows

Sale	No. Sold	No. Pounds	Amount	Wgtd. Ave. Incl. Champ.	Wgtd. Ave. Excl. Champ.	Choice				Good				Medium			
						No.	Pounds	Amount	Ave.	No.	Pounds	Amount	Ave.	No.	Pounds	Amount	Ave.
Rocky Mt.	25	21960	$4691.93	$21.36	$20.71	14	13185	$2844.09	$21.57	6	5105	$1067.72	$20.91	5	3670	$780.12	$21.25
Kinston	6	4830	1675.15	34.68	29.72	2	1755	762.00	43.42	2	1635	502.75	30.75	2	1440	410.40	28.50
Lumberton	21	16293	4094.51	25.13	22.88	6	5536	1693.40	30.59	9	6776	1491.33	22.00	6	3981	909.78	22.85
Total	52	43083	10461.59	24.28	22.30	22	20476	5299.49	25.88	17	13516	3061.80	22.65	13	9091	2100.30	23.10

Fall Shows*

						Middle Good or better				Middle Medium to Low Good inclusive							
Asheville	49	41840	8672.00	20.72	19.85	40	34920	7379.85	21.13	9	6920	1292.15	18.67				
Elkin	24	18985	3831.20	20.18	18.97	15	12445	2627.33	21.11	9	6540	1203.87	18.41				
Greensboro	17	14095	2874.00	20.39	19.18	Not graded											
Durham	5	3965	641.51	16.18	14.14	Not graded											
Dunn	11	8735	1632.16	18.68		8	6940	1320.64	19.03	3	1795	311.52	17.35				
Total	106	87620	17650.87			63				21							
GRAND TOTAL	158	130703	28112.46			85				38				13			

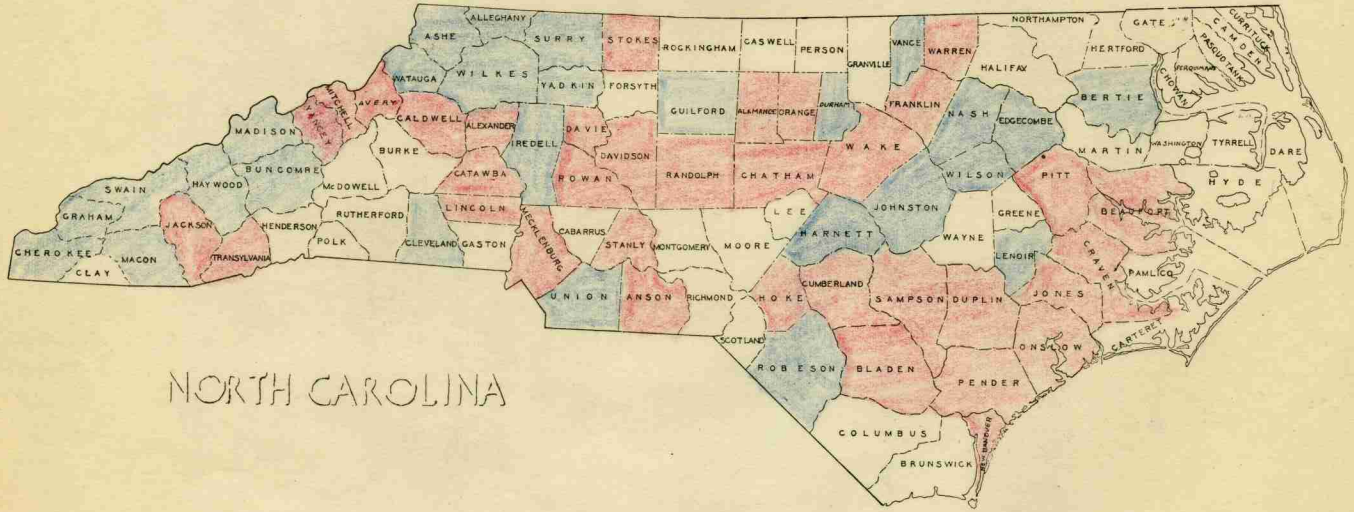
*Prizes were awarded according to U.S.Standard on a 4-3 basis. Exhibitors of animals grading Middle Good or better received identical premium money. Those exhibiting animals grading Middle Medium to Low Good received identical premium money which was 75% of the amount paid on the higher grades.

Financial Record of Baby Beef Club Records

Financial records on 109 head of 4-H Club steers show that 104 made a profit of $5616.08 when premiums are not included. Only five head lost money which losses amounted to $24.91. Deducting these losses from the profits we have a profit of $5591.17 or an average profit of $51.29 per head. When the premiums are included only one animal showed a loss and the total profit was $6865.79 or an average of $62.98.

The above compilations are based on reports from Wilson, Bertie, Edgecombe, Guilford, Harnett, Alleghany, Surry, Yadkin, Wilkes, Haywood, Union, Buncombe, Madison, Cherokee, Graham, Macon and Cleveland Counties.

Counties which exhibited and sold steers in connection with regular organized shows and which did not furnish financial reports are Vance, Johnston, Nash, Lenoir, Robeson, Iredell and Watauga.



Counties reporting 4-H Club completions in Baby Beef Projects in 1943. Counties shown in Blue indicates the ones in which club members have taken part in county or regional shows and sales.

SHEEP PROJECTS

Flock Management. Adult

Farm flock records for this year were smaller in numbers than usual which can be explained by the fact that both farmers and county agents had many extra details piled upon them together with less help. The average gross income per ewe kept was $14.80 on 36 farms located all the way from the extreme eastern tide water section to the mountains. Records for the past seven years are as follows:

Year	Gross Income Per Ewe
1937	$9.36
1938	7.18
1939	9.27
1940	9.56
1941	11.18
1942	14.40
1943	14.80
1944	12.82

Estimates by record keepers of the cost of keeping a ewe one year varied from $1.50 to $10.00 with an average of $4.49. These records bring out some interesting facts. As would be expected they show a close correlation between profits and percentage of lamb crops. They also show that the most successful sheep men use good rams, feed their flocks well, dock and castrate their lambs, treat regularly for internal parasites, control external parasites by dipping, and sell both their lambs and wool cooperatively by grade.

The average size of the flocks on which records were kept was 18 and varied from 5 to 44. This gives a fairly good picture of the way in which the sheep business is carried on in North Carolina. It is largely a farm flock enterprise, the largest being about 200 ewes.

The highest incomes on a per ewe basis were on the farms of W. W. Warden, Laurel Springs and Lee Black, Piney Creek, both in Alleghany County. Mr. Warden raised 17 lambs from 14 ewes or a 121 percent lamb crop, and Mr. Black raised 15 lambs from 8 ewes or 185 percent lamb crop.

One of the best records for fairly large flocks was that of T. C. Baird, Valle Crucis, Watauga County, who raised 57 lambs from 44 ewes. This is practically a 130 percent lamb crop which is very good for this sized flock. Mr. Baird made a gross income of $18.66 per ewe with an estimated cost of $5.50 per ewe. A net profit of $579.00 from a flock of sheep shows the possibilities of a very nice added income from sheep raising where the flock is well cared for.

Way down East in Camden County, J. E. McPherson, Elizabeth City, did a good job of sheep raising. He raised 51 lambs from 38 ewes, or a 134 percent lamb crop. Mr. McPherson grossed $16.76 per ewe with his flock.

The highest gross income in the eastern part of the state was made on the farm of E. B. Draughn of Whitakers in Edgecombe County. Mr. Draughn raised 25 lambs from 21 ewes, 119 percent. He sold $285.00 worth of lambs and $124.10 worth of wool. This included wool from 14 lambs. Mr. Draughn had learned from research work with N. C. State College experimental flocks that lambs grew off better during the summer if they were sheared in June. His gross income was $19.48 per ewe.

COOPERATIVE EXTENSION WORK
IN
AGRICULTURE AND HOME ECONOMICS
STATE OF NORTH CAROLINA
STATE COLLEGE STATION, RALEIGH, N. C.

NORTH CAROLINA STATE COLLEGE OF AGRICULTURE AND ENGINEERING
NORTH CAROLINA COUNTIES AND UNITED STATES DEPARTMENT OF AGRICULTURE COOPERATING

EXTENSION SERVICE

FARM FLOCK RECORD (SHEEP)

(For Commercial Flocks Only)

On farm of T. C. Baird

Post Office Valle Crucis, N. C.

County Watauga

County Agent H. M. Hamilton, Jr.

Number ewes including ewe lambs exposed to ram 44

How many of the above were ewe lambs? 4

Number of lambs raised to market weight 57

Total value of lambs sold or kept $656.00

Number fleeces sold 46

Number of pounds of wool sold 295

*Total value of wool $165.20

Total Income $821.20

Gross Income Per Ewe $18.66

Estimated cost of keeping a ewe for one year $5.50

*To include market value of wool made into blankets, etc.

Was a purebred ram used? Yes

If so, what breed? Hampshire

At what time did most lambs come? March

When were most of lambs sold? September

Were lambs creep fed? No

Were lambs docked? Yes Castrated? Yes

How many times was flock treated for stomach worms? All the time

What treatment was used? Phenothiazine and salt was kept before them.

Number of times flock was dipped Dipped 30 lambs

Tell briefly how flock was wintered On pasture until February 15. Fed corn and wheat.

How was wool sold?

How were lambs sold?

REMARKS:

Ram Placements

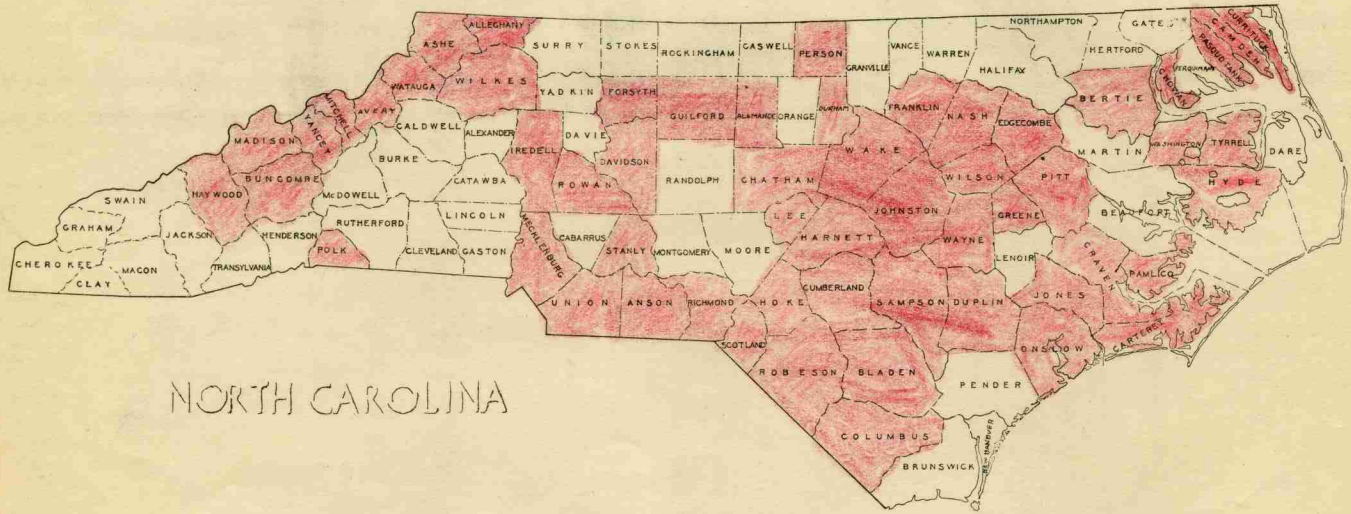
County agent's reports did not show quite as many purebred rams placed in 1943 as in the previous year, although more high grade and purebred ewes were placed on farms than ever before. Many of these ewes were added to flocks already established and for the most part came from shipments of Montana and Wyoming ewes brought in by the North Carolina State Department of Agriculture.

Summary of Ram and Ewe Placements:

Year	Rams	Ewes
1936	71	29
1937	121	110
1938	87	174
1939	99	130
1940	113	137
1941	151	275
1942	232	526
1943	220	916
1944	203	622

Grading and Marketing Lambs. Adult

Nineteen forty three showed another increase in the number of lambs sold cooperatively by grade and also another increase in the percentage of top lambs. There were 77.19 per cent of the lambs that graded Good or Choice.



Counties in which farmers were assisted in obtaining purebred Rams in 1943.

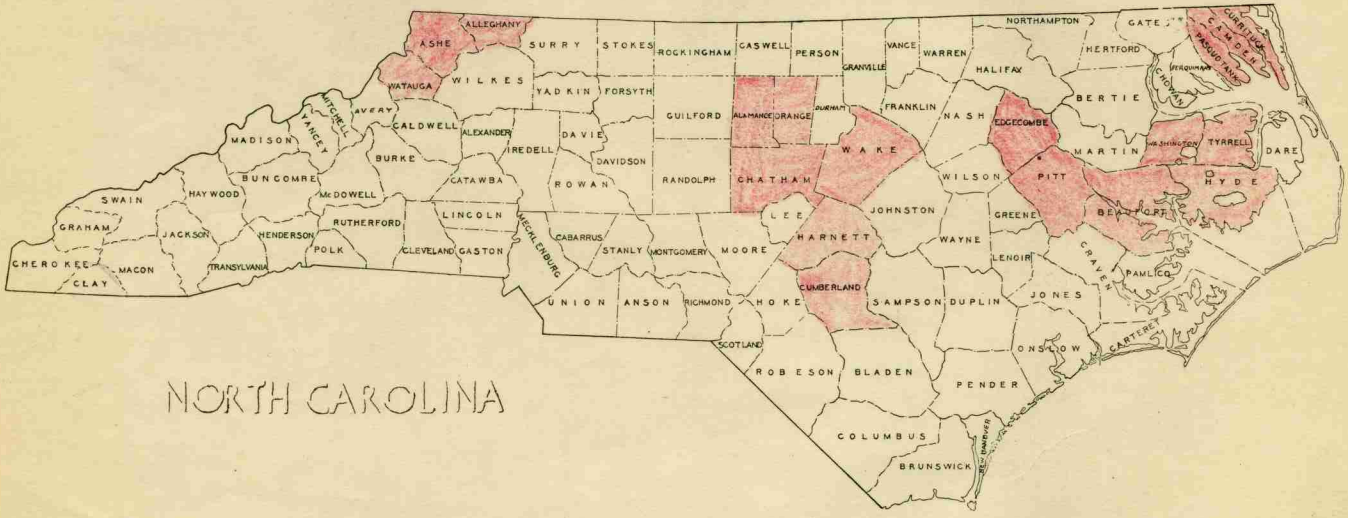
Summary of Cooperative Lamb Sales in 1943

County	Choice	Choice Bucks	Good	Good Bucks	Medium	Medium Bucks	4 s	44 s	Old Sheep	Total
* Burlington	59	7	26	13	17	3	15	7	6	153
Alleghany	525	32	464	94	93	43	15		11	1277
Ashe	351	52	366	130	91	117	61		1	1169
** Shawboro	30		67		88		41	8		234
*** Tarboro	76	13	84	18	94	25	59	7	16	392
**** Plymouth	79	6	60	33	48	38	80	3	21	368
Watauga	1120	169	646	138	194	52	105	2	16	2442
TOTAL	2240	279	1713	426	625	278	376	27	71	6035
Per Cent of Total	37.12	4.63	28.38	7.06	10.35	4.61	6.23	.45	1.17	100%

* Alamance, Chatham, Orange and Wake Counties.
** Camden, Currituck and Pasquotank Counties.
*** Edgecombe and Pitt Counties.
**** Beaufort, Hyde, Tyrrell and Washington Counties.

Total Lambs Sold Cooperatively By Grade
1935 - 1943

Year	No. Lambs
1935	2324
1936	2506
1937	4303
1938	4464
1939	4373
1940	3753
1941	4710
1942	5847
1943	6035
1944	7259



Counties in which lambs were marketed cooperatively by grade in 1943.

Cooperative Wool Sales. Adult

Record of Wool Sold Cooperatively 1943:

County Pool	No. Farmers Cooperating	Total Pounds	Price For Clear Wool	Total Money
Alleghany	245	18,210	56 cents	$10,635.33
Ashe	184	22,413	56 "	11,999.66
Avery	43	4,945	55 "	2,717.05
Watauga	403	37,568	55 "	20,512.15
Yancey	30	2,800	53 "	1,384.30
(1)Graham	40	2,886	53 "	1,457.30
(2)Chatham	16	1,345	53 "	699.60
(3)Tarboro	84	10,571	53 "	4,671.44
(4)Lillington	65	5,188	53 "	2,394.81
(5)Kinston	66	6,562	53 "	3,042.46
(6)Plymouth	137	12,967	53 "	5,519.69
44 Counties represented	1313	125,455		$65,033.79

(1) Graham Pool includes Alamance, Person, Guilford, Caswell, Granville and Randolph Counties.
(2) Chatham includes Chatham and Orange Counties.
(3) Tarboro Pool includes Pitt, Nash, Franklin, Wilson, Halifax, Northampton, Martin, Wake, Vance and Edgecombe Counties.
(4) Lillington Pool includes Harnett, Cumberland, Hoke, Johnston, Robeson, Sampson and Wake Counties.
(5) Kinston Pool includes Lenoir, Wayne, Craven, Jones, Duplin, Onslow, Carteret and Greene Counties.
(6) Plymouth Pool includes Washington, Martin, Beaufort, Tyrrell, Chowan, Gates, Hyde and Wake Counties.

The percentage of clear wool varied greatly in different sections of the state. In the mountain counties of Alleghany, Ashe, Avery and Watauga over 90 per cent was classified as clear. In eight Piedmont Counties 73.79 per cent was clear, 17.32 per cent Light Burry, and 8.88 per cent Heavy Burry.

In the rest of the state, that is, from Wake County East, Clear wool ran 11.95, Light Burry 28.21 and Heavy Burry and rejects 59.83 per cent.

The tabulation shown on the preceding page gives the prices paid for Clear wool. In the Piedmont and East Light Burry wool brought 48 cents, Heavy Burry 40 cents and what was classified as fine wool from Core Banks in Carteret County brought 47 cents per pound.

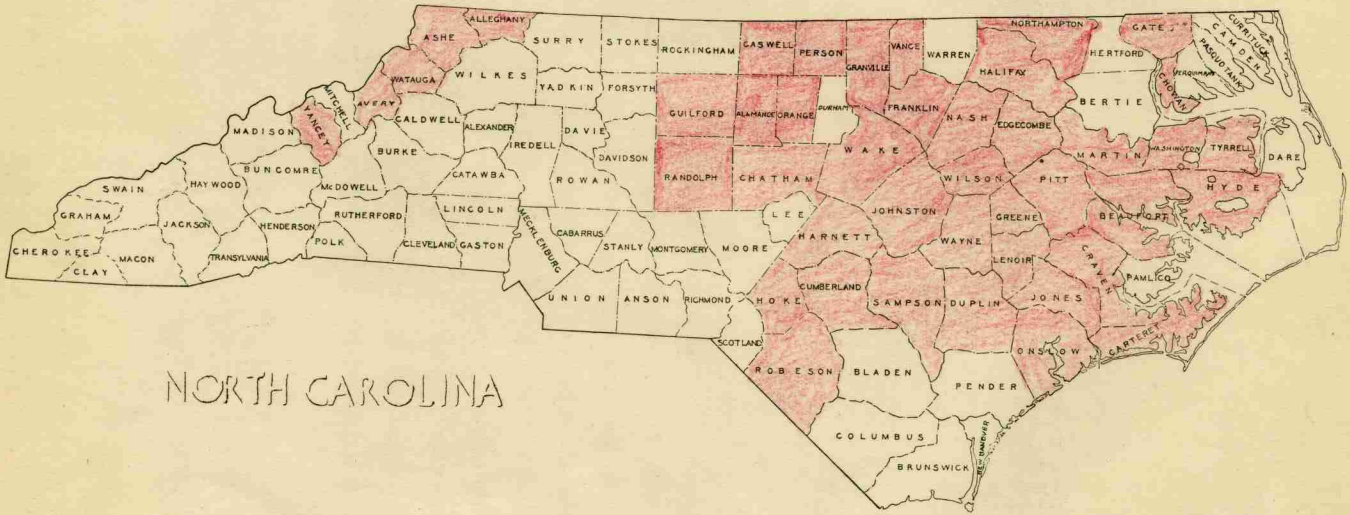
The tabulation of cooperative wool sales shows a marked increase in this work as compared with previous years. The number of farmers assisted was more than double, the number of counties worked with increased from 25 in 1942 to 44 in 1943, and total amount and value of wool sold increased from 88,660 pounds at $44,915.10 in 1942 to 125,455 pounds at $65,033.79 in 1943.

It is believed that the wool sold cooperatively sold conservatively at 5 cents per pound more than it would have sold to the country buyers which amounts to $6,272.75. This does not take into consideration that the greater part of the other wool, about 150,000 pounds, probably sold for a few cents per pound more than it would have had it not been for the cooperative sales.

Shearing Schools

Shearing schools were put on at five eastern points through the cooperation of E. S. Bartlett of the Chicago Flexible Shaft Company. At these schools 22 county agents or assistants received sufficient instructions to carry on in their counties. In addition 13 men and 11 4-H Club boys were given instructions in shearing and the proper handling of wool. The total number participating in these schools was 94.

Among the men who learned to shear were two senior students. They later did custom shearing in Wake, Johnston, Nash and Carteret Counties where they sheared 560 head of sheep for 24 farmers.



Counties in which wool was marketed cooperatively in 1943.

WORK STOCK CLINICS

Horse and Mule Clinics were held in 50 counties in January, February and March. Reports were received from 34 counties which showed 1336 farmers cooperating, 2703 work animals examined and 2363 treated.

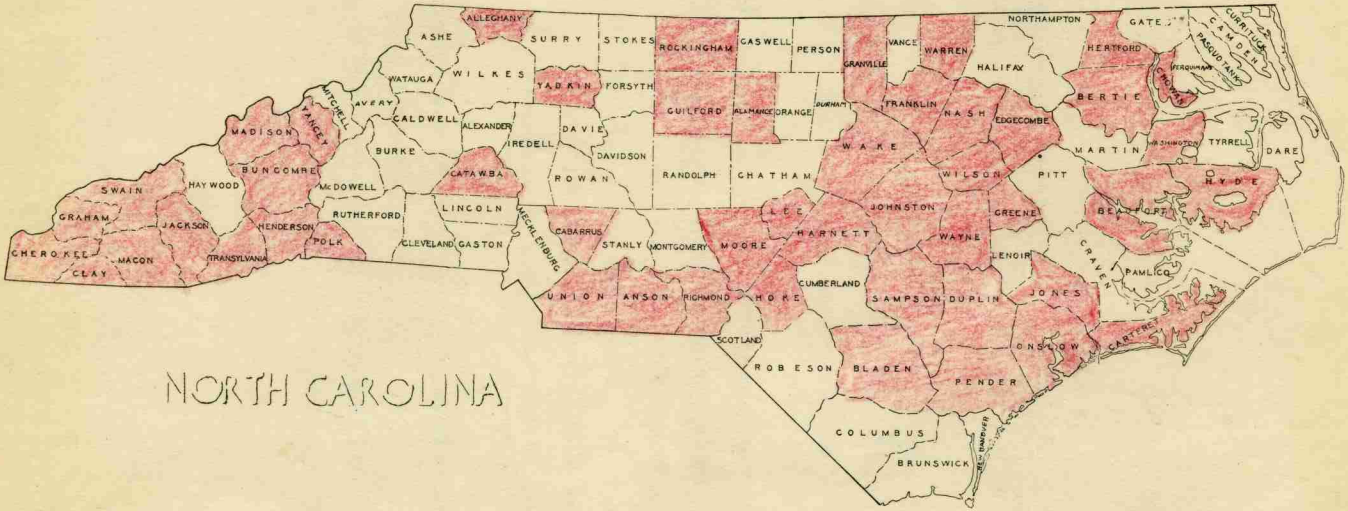
Summary of Reports Received From Farmers:

	Yes	No
1. Did the appetite improve after treatment?	322	64
2. Is the animal in better flesh?	295	76
3. Did you see any worms pass in the manure?	118	241
4. Has the general condition of the animal improved? . . .	323	58
5. Are you interested in having animals treated next year?	353	33

MISCELLANEOUS

1. North Carolina Hereford Breeders Association. This association held its annual meeting and get-together on J. H. Doughton's farm at Laurel Springs, in Alleghany County, on September 16th. In addition to the regular business meeting and election of officers a very interesting judging contest was held with $200.00 in prizes. New officers and directors elected for the current year were: President, J. H. Doughton, Laurel Springs; Vice-President, H. G. Shelton, Speed; Secretary-Treasurer, J. M. Lynch, Asheville. The other directors are George L. Pate, Rowland; B. B. Miller, Mt. Ulla; Roy S. Haynes, Clyde and E. F. Still, Plymouth.

2. County Beef Cattle Associations Formed. Increased interest in beef cattle raising in North Carolina is reflected in the fact that four county breeders associations were formed during 1943. These are Watauga, Haywood, Surry and Iredell.



Counties conducting Work Stock Clinics in 1943.

Cooperating Agencies

The Chamber of Commerce in Rocky Mount, Kinston and Lumberton in holding fat stock shows and sales.

The Chamber of Commerce in Wilson in holding Hereford Association Sale.

North Carolina State Banker's Association in furnishing premium money for Baby Beef Shows and Sales at Asheville and Elkin.

State and local veterinarians in helping to organize and conduct Work Stock Clinics.

Chicago Flexible Shaft Company in conducting shearing schools.

Chatham Manufacturing Company in purchasing wool pools.

Southeastern Chain Store Council in the interesting of buyers among the Food Chains for 4-H Club Fat Steer Sales, etc.

Atlantic Coast Line Railroad Company, through their Livestock Development Agents in assisting with all lines of endeavor in the eastern part of the state.

Tennessee Coal, Iron and Railway Company, through their local representative in all lines of livestock work.

North Carolina Department of Agriculture in lamb grading work, etc.

Civic Clubs and Bankers in promoting better livestock through sponsoring 4-H Livestock Club Work, etc.

1943 STATISTICAL SUMMARY

(From Specialists Reports)

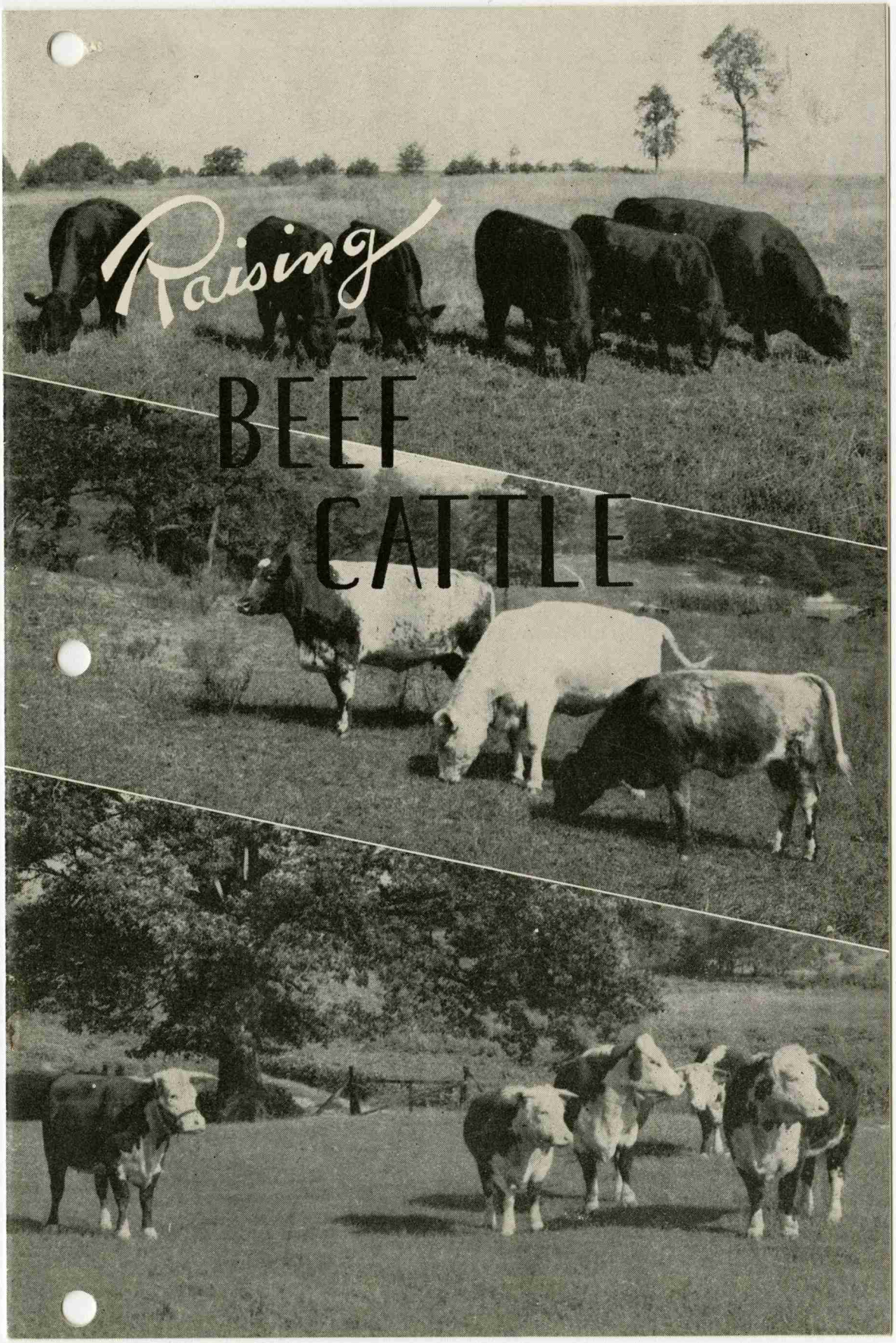
	L.I.Case	D.C.Snodgrass (4 months)	Total
Number days in the field	167	45	212
Number days in the office	141	51	192
Number days on annual leave	3	0	3
Number days on sick leave	0	3	3
Number holidays observed	3	6	9
Number miles traveled by car and bus	17,995	5,868	23,863
Number miles traveled by train . . .	2,293	35	2,328
Number visits to county agents . . .	426	64	490
Number visits to demonstrations . . .	194	1	195
Number other visits	135	90	225
Number meetings attended	55	70	125
Total attendance at meetings	5,522	1,016	6,538
Number office consultations	385	101	386
Number letters written	2,219	394	2,623
Number different circular letters . .	22	1	23
Number articles prepared	8	2	10
Number radio talks prepared and given	1	1	2

OUTLOOK

The outlook for animal husbandry in 1944 is favorable from an extension view point. In Beef Cattle more than the usual interest is evident in Baby Beef Club work. Spring shows and sales are planned for three points in Eastern North Carolina and fall shows at three points. In addition several county shows and sales are planned under local financing and sponsorship. More boys and girls will take part with considerably more animals. Increase in the production of purebred cattle has caused us to look for an outside market for bulls. An initial bull sale will be held in the Alabama Black Belt in March with the hope that this may be made an annual affair. Well organized feeder calf sales will be increased in 1943 with calves sorted as to size, graded according to U.S.Standards and sold in groups.

Sheep are slowly increasing in popularity and numbers. Better prices for lambs and wool through cooperative sales by grade has had much to do with bringing this about.

Work Stock Clinics become more extensive each year as a means of putting horses and mules in better shape for spring and summer work.


Raising
BEEF
CATTLE

NORTH CAROLINA STATE COLLEGE OF AGRICULTURE AND ENGINEERING
OF THE
UNIVERSITY OF NORTH CAROLINA
AND
U. S. DEPARTMENT OF AGRICULTURE, CO-OPERATING
N. C. AGRICULTURAL EXTENSION SERVICE
I. O. SCHAUB, DIRECTOR
STATE COLLEGE STATION
RALEIGH

DISTRIBUTED IN FURTHERANCE OF THE ACTS OF CONGRESS OF MAY 8 AND JUNE 30, 1914

SEPTEMBER, 1943 EXTENSION CIRCULAR NO. 268

Raising Beef Cattle In North Carolina

By L. I. CASE, *In Charge*
Animal Husbandry Extension

North Carolina is naturally divided into three parts, the Western or Mountain section, the Central or Piedmont, and the Eastern or Coastal Plain. Most of our natural grazing is located in the mountain area which borders Southwestern Virginia and Eastern Tennessee. Here blue grass and white clover grow naturally on most of the mountain slopes and beef cattle have been produced in fairly large numbers since early days. From this area each fall many thousands of feeder steers are shipped to Piedmont and Eastern North Carolina and to Virginia and Tennessee where they are fattened for the market.

Piedmont North Carolina is rolling in its topography and is largely a general farming section. Some of the state's best herds of beef cattle are located in this area and in recent years increasing numbers of cattle are being bred and fed as an adjunct to cash crops and for the profitable consumption of surplus feeds.

The Coastal Plain, as the name implies, is, in the main, flat country and the soil is largely sandy loam. Prior to tick eradication large numbers of native cattle ranged the open grazing lands of the Tide Water section. Compulsory dipping and fence laws resulted in the disposal of a vast majority of these cattle and when the state was declared free of the Texas Fever Tick in 1925, very few cattle were left. In the past few years, however, the cattle business in this section has been coming back on a much sounder basis than originally and many farmers are finding it to their advantage to carry a breeding herd or to fatten some cattle as an enterprise supplementary to cotton, tobacco, peanuts, and other cash crops. Others are raising cattle as the main source of revenue, and without doubt this section, with its favorable climate for the year around growing of grazing crops and its vast areas of natural grazing lands, offers the greatest opportunities for beef cattle expansion of any section of the state.

ESTABLISHING THE BEEF HERD

In establishing a herd of beef cattle the farmer should first determine the breed that best suits him and his conditions. There is so little difference between the leading beef breeds that the choice is largely a matter of individual preference.

The foundation females should be of uniform type

The foundation females may be common native stock, grades or purebreds. In general the inexperienced farmer should start with native or grade females as they involve a smaller investment than purebreds. Furthermore, the breeding and raising of registered cattle is a specialized business and only a small percentage of those entering it make a success.

The following suggestions are made to serve as a guide, especially for the beginner in the beef cattle business. Each farm, however, presents a somewhat different situation and no hard and fast rules can be laid down to fit any and all conditions.

Feeding

An adequate feed supply is of primary importance in the profitable production of beef cattle. Farmers going into the business should limit their numbers at the start and increase their herds as experience is gained and as pastures and other feeds are increased.

Pastures: Good pastures are the basis of economical beef production. The use of permanent and annual pastures for summer grazing and both mature and green crops for winter grazing are strongly recommended.

Good permanent pastures are only found on fertile soils that are rather heavy and well supplied with moisture. Most all North Carolina soils respond favorably to the application of lime and phosphate, and in certain sections potash is needed. Therefore, in the establishment of new pastures or the improvement of old, soil tests are recommended to determine the treatment needed.

Good seed bed preparation, adequate rates of seeding, proper time of seeding, a suitable pasture mixture, and good management are all important in the establishment and maintenance of good pastures.

A good pasture mixture, for an acre of medium to good Piedmont and Mountain soils is:

5 pounds Kentucky Blue Grass
5 pounds Redtop
5 pounds Orchard Grass
1 to 2 pounds White Clover
15 pounds Lespedeza

For average Coastal Plain conditions the following is recommended:

10 pounds Dallis grass
4 pounds Redtop
15 pounds Lespedeza
1 to 2 pounds White Clover

In the proper handling of a herd of cattle it is quite important to have several pastures. This makes it possible to segregate various ages and sexes when necessary. It also makes rotational grazing possible.

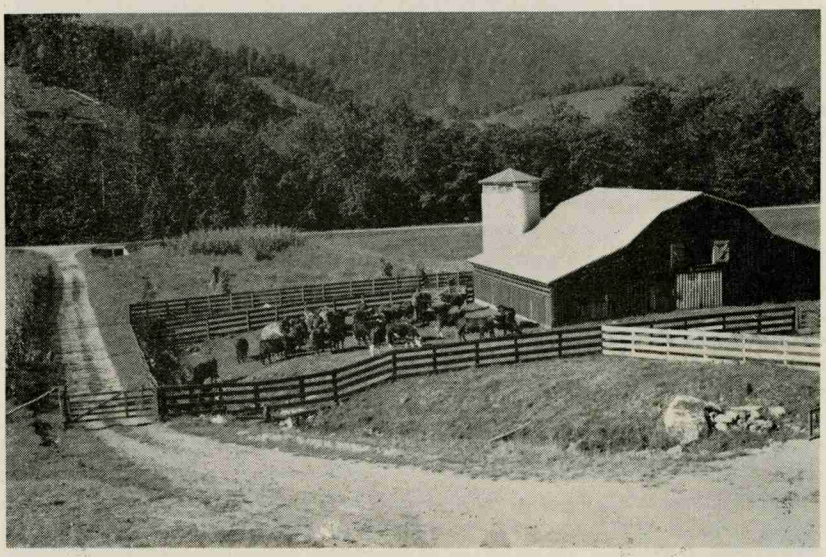
For further details on permanent pastures see Experiment Station Bulletin No. 338.

Supplementary pastures are very valuable for summer grazing when permanent pastures are short due to drought or other causes, and as a feed and labor saver in the winter. Soybeans, lespedeza, small grains, sudan grass, pearl millet and kudzu are all good summer grazing crops. Annual crops which have a place in furnishing winter grazing are Abruzzi rye, barley, oats, wheat, rye grass, and crimson clover. These may be seeded separately or in combination.

Two-year-old heifers grazing supplementary pasture

It is difficult to give definite dates and rates of seeding and the grazing periods of these various plants due to the wide variation in seasons in different parts of our state. It is important, however, that successive plantings be made with reasonably heavy rates of seedings if much dependence is to be placed upon them as grazing crops.

Winter Feeding: The following rations are for growing or maintaining cattle that are kept in the dry lot during the winter period. Much harvested feed can be saved by allowing the cattle the run of corn and velvet bean fields or corn and soybean fields after the grains have been harvested, and winter cover crops or meadows. Dry cows and two-year-old cattle in Eastern North Carolina are sometimes carried through the entire winter without harvested feed. To do this, however, one must have ample feed in the fields.



Adequate winter quarters with an abundant feed supply are essential for profitable cattle production

In the western part of the state surplus pastures that are not grazed at all or grazed only lightly during the summer can be used for carrying dry cows or nearly mature cattle of other kinds well into the winter thus avoiding the added expense of more costly harvested feeds.

Substitutions: Barley, wheat or oats may be substituted for corn in the following rations. The same is true for grass hay, peanut hay, oat straw and cottonseed hulls in place of corn stover.

Protein meal refers to cottonseed meal, soybean meal, peanut meal or other protein rich concentrate.

The rations to follow are for commercial cattle. Purebreds should be fed more liberally.

Daily Rations for 400 Pound Calves

1		2	
Corn Silage	12 pounds	Legume Hay	5 pounds
Legume Hay	5 pounds	Corn Stover	5 pounds
Corn Stover at will		Corn	1.5 pounds
		Protein Meal	.5 pound
3		4	
Corn Silage	12 pounds	Mixed Hay	10 pounds
Mixed Hay	4 pounds	Corn	2 pounds
Protein Meal	1 pound	Protein Meal	1 pound

Daily Rations for 650 Pound Yearlings

1		2	
Corn Silage	20 pounds	Legume Hay	5 pounds
Legume Hay	5 pounds	Corn Stover at will	
Protein Meal	1 pound	Corn	1 pound
		Protein Meal	.5 pound
3		4	
Corn Stover at will		Corn Stover at will	
Protein Meal	2 pounds	Corn	1.5 pounds
		Protein Meal	1 pound

Daily Rations for Two-Year-Olds and Over

1		2	
Corn Silage	25 pounds	Legume Hay	5 pounds
Legume Hay	5 pounds	Corn Stover at will	
Corn Stover	5 pounds		
3		4	
Corn Silage	25 pounds	Mixed Hay	15 pounds
Corn Stover	7 pounds	Corn	1 pound
Protein Meal	1.5 pounds	Protein Meal	.5 pound

Creep Feeding Beef Calves

The supplementary feeding of beef calves while they are nursing their dams is being practiced successfully by cattle men in many sections. There are two ways of doing the feeding. One is to allow the calves to run continually with the cows, feeding them grain in a creep. The other is to separate the calves from the cows when they are six weeks or two months old, allowing them to nurse twice daily, and keeping feed before them in a barn or open shed connected with a separate pasture that is used exclusively by the calves.

If the creep is used it should be located in a spot that is visited often by the cows and calves each day. An ideal place is in the shade near the watering, lounging and salting place. The creep may be built of lumber, poles or wire with openings 16 to 20 inches wide by about 3 feet high. The size of the opening should be such as to allow the calves to pass through, yet exclude the older cattle. A regular feed trough with a roof over it or a self feeder may be used.

Difficulty is sometimes experienced in getting calves started on feed in the creep. This is especialy true if they were not started on grain before being turned on pasture. It will help get them started if the cows and calves are driven to the creep for a few days, or it may be necessary to allow the cows to eat with the calves for a while.

Suggested Rations

FOR CALVES TO BE SOLD FOR SLAUGHTER AT WEANING TIME OR SOON AFTER

Age of Calf	*Grain Mixture*	*Parts by Measure*
2- 4 months—	Shelled or coarsely ground corn, barley or wheat	2 parts
	Oats	1 part
4- 6 months—	Shelled or coarsely ground corn, barley or wheat	5 parts
	Oats	2 parts
	Protein meal or cake	1 part
6-10 months—	Shelled or coarsely ground corn, barley or wheat	8 parts
	Protein meal or cake	1 part

There is little or no advantage in grinding corn for calves as the added cost usually more than offsets any advantage. Then too, calves do their own grinding more efficiently than older animals.

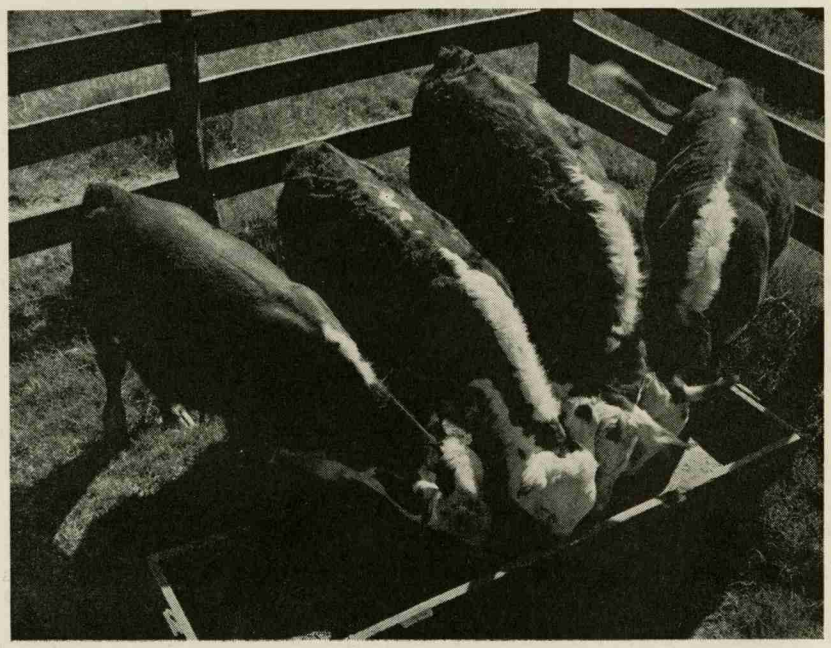
As a rule, calves to be creep fed for the market at weaning time, should be dropped in January and February, although there may be some variation from these months either way. This makes it possible to get them nicely started on grain prior to the time they are turned to grass.

Creep Feeding Purebred Beef Calves

Beef calves that are to be kept for breeding purposes are not generally fed grain while nursing their mothers on pasture except in the case of purebred calves that are to be pushed for early sale.

Suggested Rations for Creep Feeding Purebred Beef Calves

Age of Calf	*Grain Mixture*	*Parts by Measure*
2- 4 months	Shelled or coarsely ground corn, barley or wheat	1 part
	Oats	1 part
	Wheat bran	1 part
4- 6 months	Shelled or coarsely ground corn, barley or wheat	2 parts
	Oats	2 parts
	Wheat bran	1 part
6-10 months	Shelled or coarsely ground corn, barley or wheat	4 parts
	Oats	4 parts
	Protein meal	1 part



See Extension Folder No. 49 for details of calf creep

General Feeding Suggestions

Silage made of corn, cane, grasses or legumes, preserved in the trench or upright silo is increasing in popularity as a winter feed. In the Coastal Plain area of the state there is often a period of a few weeks after permanent pasture runs out in the fall, and before winter crops are ready for grazing. During this time silage can be used to very good advantage. It is again very useful after fields are plowed in the spring and before permanent pasture is far enough along for grazing. Silage is also used as a supplementary summer feed in time of grass shortage due to drought or other causes.

Water that is clean and fresh should be available at all times.

Salt, preferably in the coarsely pulverized form, should be accessible to cattle of all ages at all times.

Mineral Mixtures: The need of supplying *calcium* and *phosphorus* depends upon the amounts in the feed. The supply of these minerals in our common feeds, especially roughages has decreased in our older farming sections unless they have been replenished in the soil by the addition of lime and phosphate fertilizers. Legume hays such as alfalfa, clover, soybean and peanut are generally rich in calcium. Carbonaceous roughages like corn stover, grass hays and cottonseed hulls are generally low in calcium.

The roughages are generally low in phosphorus. Protein concentrates, such as cottonseed meal, soybean meal and peanut meal, on the other hand are rich in phosphorus, while the common grains are an intermediate source of supply of this element. If one pound or more of a protein concentrate is fed per head daily, cattle will have an ample supply of this element.

The herd enjoys comfortable shaded areas near good grazing

There are several minor elements such as iron, copper, and cobalt that are required in very small quantities by animals for proper growth and development. The great majority of our North Carolina soils contain sufficient amounts of these. There is evidence of minor element deficiencies in the more sandy sections of the tidewater area. The mineral mixture recommended for this area is:

Ground limestone or oyster shell flour	40	pounds
Steamed bone meal	40	pounds
Salt	19.25	pounds
Iron sulphate (copperas)	0.60	pounds
Copper sulphate (bluestone)	0.10	pounds
Cobalt chloride or carbonate	0.05	pounds
	100.00	

Care should be taken to see that the cobalt, copper sulphate and iron sulphate are thoroughly mixed with the other ingredients. A practical way to do this is to first mix the cobalt with the copper sulphate. Then mix this with the iron sulphate and so on until all ingredients are well mixed.

In the rest of the state it is well to keep a simple mineral mixture in addition to salt where the cattle have free access to it. One of the following should prove satisfactory unless there is evidence of deficiencies of some of the minor elements:

1

Steamed bone meal	80	pounds
Salt	20	pounds

2

Oyster shell flour or finely ground limestone	100	pounds
*Phosphatic limestone	100	pounds
Salt	100	pounds

Stock foods, tonics, etc. Farmers are spending millions of dollars annually for stock powders, conditioners, tonics, etc., in spite of the advice to the contrary by our experiment stations and veterinarians. The higher priced stock foods contain liberal amounts of linseed meal and other highly nutritious feeds while the cheaper ones contain only low grade feed stuffs. To these are added common salt and various other salts and drugs to give them color and aroma. Normal, well fed farm animals need no tonic, while sick animals should receive a specific treatment that is recommended by a good veterinarian rather than some "cure-all" mixture.

The Herd Bull

The type, quality and conformation of the herd bull is of very great importance. He should be a good individual and typical of the breed. The right kind of a bull will improve the herd through his offspring while an inferior animal will cause it to degenerate. It is only logical that the better the females, the nearer to perfection the herd bull should be. The ideal beef type bull, regardless of breed, should be very thick, deep and compactly built. He should have a straight top and underline, even thickness from end to end and be close to the ground. His head should be wide between the eyes and short from the eyes to the muzzle. There should also be evidence of character in the head as indicated by a bold, strong, masculine appearance.

* The fluorine content of phosphatic limestone should not exceed ½ of 1 per cent.

The ideal beef type bull, regardless of breed, should be thick, deep and compactly built

The eyes should be prominent and the muzzle large. The neck should be short and thick and the crest well developed. The shoulders should be reasonably prominent without being rough and the chest should be wide. The heart girth should be wide, full and deep, indicating a good constitution. The back should be straight from the shoulders to the tailhead, the ribs well sprung, the loin wide and thick and the hips smoothly laid in. The rump should carry out straight, and be neither high at the tail head nor sloping. Thickness is of prime importance in the rump and hind quarters generally. The thighs should be full and deep with plenty of depth in the twist and rear flanks. The legs should be short, straight and set at the four corners of the body. The ideal bull should have an abundance of natural fleshing, with reasonably heavy bone. Good quality in a bull is indicated by clean cut bone, a pliable hide and a soft mossy coat of hair.

Care of the Herd Bull

The young bull should not be used for service until he is at least one year old. Then he should be used on not over 10 or 12 cows, one service each. Too heavy service for a young bull may impair his usefulness.

A bull should be 30 or 36 months old and well grown before he be allowed to run with the herd during the breeding season. At this age he can take care of 25 to 35 cows.

Young bulls should be well fed and cared for in order to grow them out properly. A good ration consists of equal parts by weight of corn, crushed oats, and wheat bran, and in addition all the legume hay they will eat. If legume hay is not available add about ½ pound of a protein supplement to

the grain mixture. Where wheat bran is too high in price, double the amount of oats in the ration. The total amount of grain to be fed should vary with the condition of the bull, but in no case should it be necessary to feed more than 1 pound for each 100 pounds live weight of the animal. Small amounts of good sweet silage may be fed to the bull but large quantities may prove detrimental.

Give the bull access to salt and pure water at all times and a mineral mixture should be kept where he can help himself to it.

The herd bull should be kept in a strongly fenced pasture where he can graze and take exercise. An open shed or shelter of some kind should be available. Some bred cows running in the same lot will induce exercise and provide company for the bull. In no case should a young bull be allowed to run with unbred females.

Management

Shelters for beef cattle need not be expensive. As a matter of fact many of our most successful herds are maintained the year around with no shelter except that which nature provides. Open sheds facing away from the prevailing winter winds are the most practical. They should be on well drained ground, deep enough to cut down draftiness and large enough to allow about 60 square feet of floor space per animal. Tight barns except in our higher altitudes should not be used. As a rule shelters should be provided with gutters to keep the lots from becoming excessively muddy and in some sections it may be advisable to pave the feed lot.

Bedding: Someone has said that an animal with a good bed is half fed. Certainly it is important that cattle kept under shelter should be well bedded as adequate bedding conserves both feed and manure. In the case of sale cattle, their improved appearance more than pays for the added cost and labor. Grain straws, shredded corn stover, pine straw and leaves are the most common bedding materials used in North Carolina. When pine straw or leaves are depended upon for bedding they should be gathered when dry and stored or stacked for future use.

Controlled Breeding: On the well managed farm beef cows are generally bred in the late spring or early summer in order that they may calve at the proper time. In Eastern North Carolina under average conditions the bull is allowed to run with the cow herd during May, June and July, and the calves arrive in February, March and April the following year. This same procedure, with perhaps some variations to suit local conditions, is followed in Piedmont and Western North Carolina.

There are several advantages for having the calves come at this time of the year. Dry cows can be much more easily and cheaply wintered than cows nursing calves. Winter and early spring calves usually grow off faster and make bette animals than calves dropped in the summer and fall. Calves dropped close together in the spring of the year can all be weaned at the same time. Their uniform ages makes it possible to pasture, house and feed them together.

It is only under very exceptional circumstances that heifers should be bred before they are 18 months of age and unless they are especially well

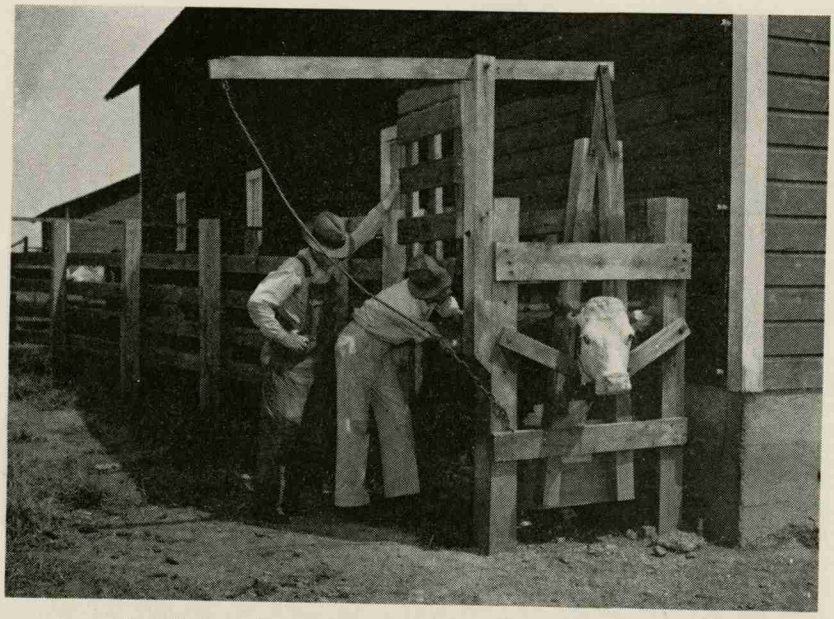
Heifers should not run with the herd bull until they are at least 18 months old

grown it is often best to wait until they are 20 or 24 months old. Heifers bred too young very often have trouble at calving time, give insufficient milk for their calves, and seldom attain normal size. When heifers are bred too young some of the damage can be offset by feeding them extra well. If they are especially valuable animals it is advisable to furnish nurse cows for the calves, and dry up the mothers.

Culling: The cow herd should be culled of poor producers at regular intervals. Factors to be considered in culling are regularity of breeding, the quality of calves produced, milking qualities, age, and individuality. Too much emphasis is very often placed upon individuality and not enough upon the other things mentioned. This may result in discarding the best producing cows in the herd as they often look the poorest because they are nursing their calves well. Beginners frequently pay too much attention to color markings and not enough to the more important characteristics. It will pay to cull close when cattle are high in price and allow the herd to build up when low prices prevail.

Dehorning, Castrating and Marking

Dehorning may be done in one of several ways. The use of a polled bull is one method that is favored by many commercial cattle producers. The percentages of polled calves that a polled bull will sire varies greatly. One writer on the subject describes a "pure" polled bull as one that is carrying in his blood no tendency whatever to produce horns. Using the word in this sense, a "pure" polled bull will sire 100 per cent polled calves even when used on horned cows. On the other hand a polled bull, that is the result of the use of a "pure" polled bull on a horned cow will get only about 50 per cent of his calves without horns.



A cattle chute in indespensible on the well managed cattle farm

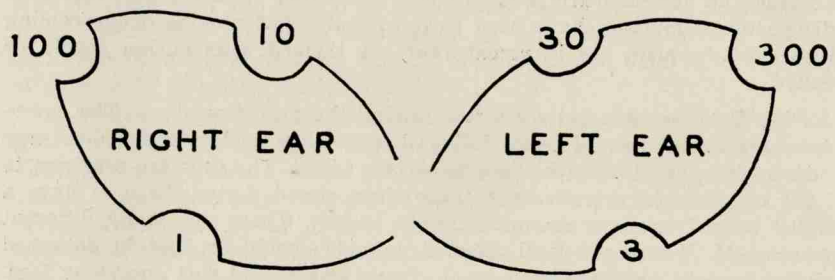
Chemicals are often used for dehorning young calves. Those generally used are caustic soda (Sodium hydroxid) or caustic potash (potassium hydroxid) which can be secured at a drug store in stick form. When caustic is used the dehorning should be done when the calves are from 3 days to 3 weeks old. First clip the hair away from the budding horn. Then rub the space with a rough substance such as a corn cob until it shows signs of irritation. Then holding the caustic wrapped in a piece of heavy paper, dip its point in water and rub the horn button lightly with a rotary motion. Repeat this same procedure after the surface has dried, being careful not to get the caustic too wet or touching anything except the horn button. Beginners sometimes place a ring of vaseline, lard or other grease around the horn so as to avoid burning more than the desired spot. The effect of the caustic is to deaden the root of the horn. A scab is formed which later drops off leaving a smoot spot. This method of dehorning is used most in small herds. *Do not let the caustic touch the hands or any part of the body as it will cause a serious burn. Keep it in an air tight bottle when not in use.*

Mechanical dehorners of various kinds are used on cattle when they get past the young calf age. A small calf dehorner sometimes called a "gouger" can be used successfully on calves from 1 to 3 months old. From this age up to about 10 months a mechanical dehorner with half round cutting blades has proven best. Beyond this age mechanical clippers or a saw is generally used. Ordinarily about one-quarter of an inch of flesh and hair should be cut off at the base of the horn in order to insure a smooth head. When they are not cut close enough some growth takes place resulting in unsightly stubs or scurs. A good fly repellent such as pine tar should be used around the wound.

Castration: The castration of all bull calves in commercial herds and of poor individuals in purebred herds is a good economic practice. The operation may be done at any age but is best performed when the calves are from a few weeks to 3 or 4 months old. This operation may be done at any season of the year when a bloodless instrument is used. When a knife is used it is best done when flies are not prevalent, although it is advisable to use pine tar or other good fly repellent and disinfectant around the wound at any season of the year.

Marking or Identification: There are two reasons for marking cattle. One is for the establishment of ownership and the other for identifying individual animals as in purebred herds.

There are several ways of *marking for ownership* such as hot iron branding of the hide, ear slitting, ear notching, ear tagging, and wattling. While branding is no doubt practical in the range country, under our conditions ear notching is probably the most practical means of showing ownership. When it comes to *identifying individuals* the surest and most permanent mark that can be used is *tattooing* in the ear. Numbers and letters are pierced into the skin on the inside of the ear using India ink. This is the means of identification required by several of the breed associations. Its main drawback is that the animal must be caught and the ear closely examined before the mark can be read. *Ear notching* is quite a common way of marking farm animals of all kinds. There are several systems used, one of which is to have each notch on the under side of one ear indicate 1, each notch on the upper side of the same ear count 10, and notches on the lower and upper side of the other ear indicate 3 and 30 respectively. For large herds of cattle notches in tips of the ears to indicate 100 and 300 are used.



Ear notching is a common means of identification

If ear notching is carefully done on young animals it is a very satisfactory means of identification. It is objected to by purebred men because the ears are more or less mutilated. Ear labels in the form of *tags* or *buttons* are sometimes used but they are quite easily lost and thus require frequent replacement. The button is the least likely to be torn out. *Neck chains* with numbered metal tags on them are very often used for polled cattle. The objection to them is that they are sometimes lost and also have to be adjusted frequently on young growing cattle. *Horn branding* is a very good way of marking mature cattle of the horned breeds. Such brands are very

temporary for yearlings and no good at all for calves. This means of marking sale cattle is often used, the horn brand corresponding to the catalog number of the animal.

COMMON DISEASES AND PARASITES OF CATTLE

Shipping Fever or Hemorrhagic Septicemia: This disease is not unusual in all parts of the United States and is most common in young animals especially those in thin condition. It more often affects cattle which have been devitalized by shipping or other causes, hence the common name. *Symptoms:* The disease usually develops rapidly, and is accompanied by a temperature of from 104° to 107°; loss of appetite, discharge from the nose, general depression, stiffened gait, and sometimes diarrhea. Pneumonia may develop and the animal die within 47 to 72 hours or the disease may become chronic and linger for several weeks. Since this disease is usually brought about by devitalization *prevention* should be given first consideration. Avoid exposure; over driving; over feeding; lack of rest, water, feed, or proper shelter in transit. Control measures consist of the use of homologous serum (obtained from bovine species) either prior to or following shipment. Treatment should be done by or under the direction of a competent veterinarian.

Pneumonia is an inflamation of the lungs resulting in the filling of part of the air sacs with the discharge. This disease is often secondary to shipping fever or other diseases and sometimes the result of drenching and getting liquid into the lungs. *Symptoms* of pneumonia are high temperature, lack of appetite, dullness, rapid and shallow breathing and a strong hard pulse. The muzzle is dry and hot, the skin dry and often a wheezing or gurgling sound may be heard over the chest wall. *Treatment* first should consist of keeping the animal warm and dry and protection from drafts. Numerous drugs and stimulants have been used with the sulfonamide drugs coming into more frequent use in recent years. A trained veterinarian should be called.

Pink Eye has been quite common during the past few years. The *symptoms* are first a flow of tears, followed by swollen eyelids and a discharge mixed with pus causing the face to become soiled. The eyes are sensitive to light resulting in a tendency to keep them closed. Later the eyes have a milky appearance and sometimes sight is lost. There are many different *treatments.* Where practical affected animals should be kept in darkened shelter and be provided with ample fresh water, and soft succulent feed. Give 1 to 1½ pounds of Epsom salts, depending upon the size of the animal, dissolved in water. There are many different kinds of eye lotions that may be used effectively. Bichloride of Mercury, 1 part to 5000, Silver Nitrate in a one percent solution, Mercurochrome, 1 to 4 percent solution, have all given good results. Saturated boric acid, Epsom salts or common salt solutions have been used effectively. Any of these treatments should be administered with a soft cotton swab, being careful to avoid undue rubbing or pressure. Where these treatments are used every other day for several days without favorable results, call a veterinarian.

Bloat is quite a common disorder in cattle and may be caused by over eating, consumption of spoiled feeds, the obstruction of the openings of the

forestomachs with foreign bodies, or factors that interfere with normal rumination or intestinal movements. Bloat is often caused by animals eating excessive amounts of green legume forages and can be prevented by giving animals a good feed of dry hay before they are turned out on such green crops. *Treatment* consists of drenching with as much as 12 ounces of *raw* linseed oil. Exercise or tying the animal with the head high will sometimes bring about a release of the gas pressure. Another method of relief is the placing of a round smooth stick in the animal's mouth. A rope or strap is attached to both ends of the stick and tied back of the ears. This causes chewing, salivation and the release of gas, thus at least relieving the condition until better remedies can be applied. In severe cases the use of a trocar to puncture the paunch may be necessary. A qualified veterinarian should be secured for this operation where possible.

Choke is caused by an animal attempting to swallow a large object such as an apple or potato without chewing it. It is also sometimes caused by a hungry animal eating soft foods too rapidly. The first *symptoms* as a rule are restlessness, salivation, retching and coughing. If the object causing the trouble can be located in the neck portion of the esophagus, place a hand on either side of the neck along the jugular furrow and gently press upward. When the object reaches the pharynx it can be removed by the hand through the animal's mouth. In view of the fact that choke often causes bloat, the same mechanical methods for relief mentioned in the previous paragraph should be applied. *Never drench a choked animal.* The material will go into the lungs.

If the object causing choke is in the chest portion of the esophagus and none of the above methods result favorably, a veterinarian should be called.

Calf scours are caused by spoiled feed or infectious germs. It is of first importance to remove the cause. *Treatment:* Disinfect quarters, cut down milk or other feed and give 1 to 2 ounces of castor oil in ½ to 1 pint of warm sweet milk. For cases that castor oil will not cure, give a heaping tablespoonful of equal parts of Bismuth Subnitrate and Salol in ½ to 1 pint of sweet milk or water, 3 times per day.

Hydrocyanic Acid Poisoning is responsible for large losses of cattle and other livestock. Plants which are largely responsible for this trouble are sorghum, sudan grass, Johnson grass and arrow grass, if eaten when their normal growth has been interrupted by drought, frost, trampling or other causes. Young and second growth plants or sprouts seem to develop larger amounts of hydrocyanic acid than older plants. Hay made from these plants in any stage is a comparatively safe feed. *Symptoms* of this form of poisoning are uneasiness, rapid breathing, depression, stupor, convultions, paralysis and death. The disease sometimes develops quite rapidly, lasting only a few minutes, or, for several hours. At the first sign of trouble all the cattle should be removed from the grazing area. In view of the rapidity with which this disease often develops, there is seldom opportunity for *treatment.* If the victim can be reached in time good results have been secured by administering a combination of sodium thiosulfate and sodium nitrate injected into the lining of the abdomen or into the veins. This treatment should be given by a qualified veterinarian.

Foul Foot in cattle is first evidenced by lameness and is often caused by the animal being forced to stand in filthy places. Other symptoms are in-

flamation and swelling between the toes and often extending above the hoofs. The disease is accompanied by a characteristic foul odor. Cure is usually quite readily accomplished if treatment is given in the early stages of the disease. A 2 percent solution of coal tar dip, or a 2 to 10 percent solution of copper sulphate (blue stone) or any good disinfectant will usually correct the trouble.

Blackleg is caused by a micro-organism and usually affects young animals from six months to two years of age. *Symptoms* of the disease are a high fever, loss of appetite, depression, and rapid breathing. Swellings appear beneath the skin on the neck, shoulders, flanks and thighs. They are very painful to the touch and pressure upon them produces a crackling sound due to a collection of gas under the hide. Death usually occurs in 12 to 36 hours after the first appearance of the disease. There is no known medical *treatment* for blackleg. Dispose of dead animals by burning or deep burial. *Prevention* can be accomplished by vaccination.

Ring Worm is a contagious disease of cattle which may be transmitted to man or other animals. *Evidence of the disease* are rounded scaly patches on the skin chiefly about the head and neck, shoulders, breast, flank or back. It occurs more often in young cattle and is sometimes referred to as "calf itch." *Treatment* consists of removing the crust with soap and water or scraping with a sharp object and treating the spots daily with iodine or a sulphur ointment.

Scab, sometimes called mange, is caused by insectlike parasites called mites. The skin of the affected part becomes crusted, thickened and devoid of hair. There are several different types of this disease and for that reason it is best to have a good veterinarian prescribe treatment.

Warts are quite common on young cattle. They are most often found on the head, neck and shoulders. They are infectious and cause considerable loss in the value of hides. Warts can generally be removed by keeping them soft by daily applications of castor oil or sweet oil. Daily applications of glacial acetic acid or tincture of iodine are also used for the removal of small warts. Extremely large ones should be removed surgically by a veterinarian.

Cattle Grubs or heel flies are said to cause upward of fifty million dollars loss to cattlemen in the United States through damage to hides, loss of weight and injury due to fright when the flies are depositing their eggs. Considerable damage is caused by this pest in North Carolina especially in the Piedmont and Western part of the state. *Treatment:* No practical means of control has been found except when the grubs are in the backs of the cattle which occurs from December to June. Cube powder or derris powder is most effective. The 5 percent rotenone powder thoroughly mixed with equal parts of wettable sulphur may be applied and worked into the grub openings in the hide by the hands or a stiff brush. When these insecticides are not available Benzol may be used effectively by injecting small amounts into the hide opening with an oil can. Hand extraction is also often used in small herds of cattle. When this method is followed care should be exercised to avoid crushing the grubs. Regardless of the treatment used it should be started 30 days after the first grubs appear in the backs of the cattle and repeated every 30 days until no more can be found. Treatment should usually be started in early January.

Lice: There are four species of lice that attack cattle. One is the biting kind and the other three are blood suckers. They cause a tremendous loss unless controlled. *Dipping* is the most practical means of control and privately owned or community dipping vats are recommended. When small numbers of cattle are involved and a vat is not available, they may be treated satisfactorily by thorough spraying or the use of dusting powders. The following dip has proven effective:

Cube or derris powder (5% rotenone)	10 pounds*
Wettable sulphur (325 mesh or finer)	100 pounds
Water	1000 gallons

Coal-tar-creosote dips, following the directions of the manufacturer, are satisfactory for the control of all except the short-nosed ox louse if used in soft water.

A dust made of one part 5% rotenone and 5 parts of wettable sulphur may be used effectively in controlling the short-nosed ox louse. For all other cattle lice wettable sulphur alone is effective. Apply the dust with a shaker can to all parts of the body, rubbing it in well.

Oil treatments are used effectively for controlling cattle lice of all kinds. The most satisfactory oil is raw linseed. *Do not use boiled or refined linseed oil.* The oil should be spread over the animal with a brush or cloth, rubbing it in lightly. A pint is sufficient to treat four head of cattle. *Do not* use an excess of oil. *Do not* apply when weather is extremely cold. *Do not* heat the cattle by running after treatment. *Do not* keep animals in bright sunlight for 24 hours after treatment.

Treatment for lice should best be administered in the early fall before cattle become badly infested. Treatment should be repeated in 12 to 14 days and again in 17 to 21 days for high control. Two treatments 17 to 21 days apart will give fairly good control.

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* The use of this material has been restricted by the War Production Board and can be used only for controlling the short-nosed ox louse during the war emergency.

The AGRICULTURAL EXTENSION SERVICE maintains a county farm agent in each of North Carolina's 100 counties and a home agent in 94 counties. They are assisted, in many of the counties, by assistant agents and by Negro farm and home agents. The Extension Service represents the United States Department of Agriculture, the North Carolina State College of Agriculture and Engineering, and the local county. Farmers or other members of the rural family may secure full information about the Nation's War program as it relates to the farm family by discussing the matter with these county agents. Bulletins, printed material and other information may be secured by writing to the Agricultural Extension Service, North Carolina State College, Raleigh, N. C.

COOPERATIVE EXTENSION WORK
IN
AGRICULTURE AND HOME ECONOMICS
STATE OF NORTH CAROLINA
STATE COLLEGE STATION, RALEIGH, N. C.

NORTH CAROLINA STATE COLLEGE OF AGRICULTURE AND ENGINEERING
NORTH CAROLINA COUNTIES AND UNITED STATES DEPARTMENT OF AGRICULTURE COOPERATING

EXTENSION SERVICE

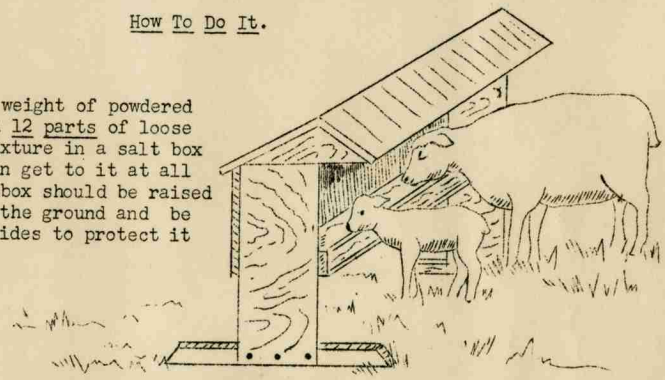
STOMACH WORM CONTROL IN SHEEP

By
Animal Husbandry Extension Office

Stomach and intestinal worms are serious handicaps to the sheep industry unless definite measures are used to control them. Recent experimental work shows that sheep will eat enough of a mixture of phenothiazine and salt to control these worms, thus making individual treatments unnecessary.

How To Do It.

Mix 1 part by weight of powdered phenothiazine with 12 parts of loose salt. Put this mixture in a salt box where the sheep can get to it at all times. The salt box should be raised a few inches from the ground and be covered on three sides to protect it from the weather.



Ten pounds of this phenothiazine-salt mixture should supply the normal requirements of 30 to 35 sheep for periods of from 2 to 4 weeks. If at first it is found that sheep do not consume this mixture readily it may be necessary to add to the mixture from time to time a few handfuls of feed.

We have no information on the effectiveness of giving this phenothiazine-salt mixture to sheep at periodic intervals similar to the common practice of salting stock in our mountain counties. It is suggested, however, that this method be used when it seems impractical to keep the mixture available continuously.

Phenothiazine causes a red or brown discoloration of the urine which in turn discolors parts of the fleece to some extent. This is of minor importance, however, and so far as is known there are no injurious effects to the sheep.

Good managerial practices should not be neglected. Prevention of stomach worm infestation may be accomplished by use of annual grazing crops such as soybeans, lespedeza, the small grains and winter legumes. When permanent pastures are used, the flock should be moved from one area to another as often as it is practical.

COOPERATIVE EXTENSION WORK
IN
AGRICULTURE AND HOME ECONOMICS
STATE OF NORTH CAROLINA
STATE COLLEGE STATION, RALEIGH, N. C.

NORTH CAROLINA STATE COLLEGE OF AGRICULTURE AND ENGINEERING
NORTH CAROLINA COUNTIES AND UNITED STATES DEPARTMENT OF AGRICULTURE COOPERATING

EXTENSION SERVICE

October 20, 1943

TO COUNTY AGENTS IN THE ASHEVILLE SHOW AREA:

Some last minute suggestions regarding the handling of stock just prior to and at the show:

Give your boys final instructions in leading and showing. A good walk each day now and at the show will be good for the calves. If the heads and tails are not yet clipped have it done about one week before the show.

Dispose of wild unmanageable calves locally and not bring them to the show.

Avoid too much washing at show. Two or three good washings prior to shipping and one after arriving at show should be sufficient in most cases. Then keep the stalls well bedded and clean.

The following will help to prevent calves and hogs scouring and going off feed:

1. Cut down amount of salt prior to and at show.
2. Gradually cut out succulent feeds and legume hays and substitute well cured grass hay instead.
3. Do not feed a full grain ration just prior to shipment or upon arrival at the show. Otherwise feed regularly as to kind and amount of feed.
4. If calf is hot and very tired upon arrival at show, do not give him grain ration until he cools off and rests a while. Just give him some hay and a little water. If he gets all the water he wants while hot, scouring and going off feed will be the result.
5. Get calves used to eating and drinking out of same boxes or buckets that will be used at show.
6. Ground feed and thin slops should not be fed to the hogs just prior to the show, but give them all the shelled corn they want.
7. Do not wash the hogs prior to the show but use a good brush often. Take a trough, shelled corn and a brush for use at the show.

Be sure to have necessary equipment for boys and cattle. This includes tubs or feed boxes, one for each animal, buckets for watering, good halters for tying and showing, forks for handling straw and litter, brushes, combs, etc.

Review rules of show and see that all are carefully observed.

Price ceiling regulations make it more important than usual that you exert every effort to interest local buyers for some of your steers.

There seems to be some confusion as to how meat rationing regulations apply to our club sales. Column 7 on the enclosed form may be of help to you. As far as we know there have been no changes since this was prepared.

In view of shortage of tires and gasoline it is suggested that counties double up on transportation of both animals and folks as much as possible.

It is not necessary that steers be tested for tuberculosis or Bangs disease.

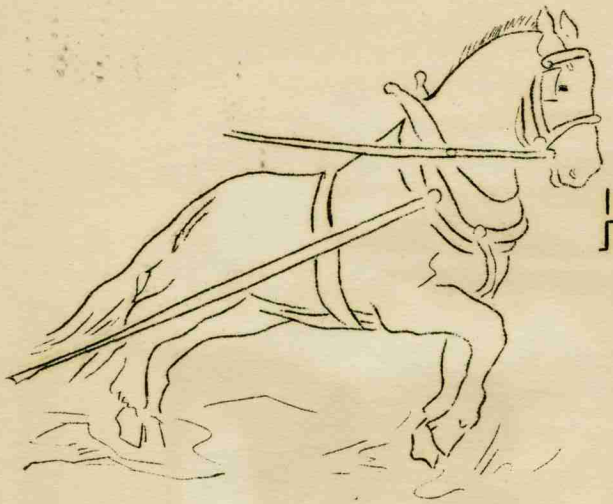
While it is required that all calves be in place by 6:00 P.M. the day before the show, it is advisable that they be placed as much earlier as possible to give them more time for rest and to become accustomed to new surroundings.

Yours very truly,

L. I. Case, In Charge Animal Husbandry Extension.

E. V. Vestal, Animal Husb. Extension Specialist.

Encl.



PULLING FOR HORSE AND MULE CLINIC

1. Free Examination of All Animals Brought to Clinic.
2. Treatment For Roundworms And Bots When Needed.
3. Floating Teeth And Advice On Foot Trimming.
4. Advice On Feeding And Management.

PLACE _____

DATE _____

TIME _____

In Cooperation With –

_____ County Agent

_____ Veterinarian

Fine Beef Cattle, Exhibited at Elkin Show

BEEF ON PARADE—This array of fine beef cattle won the attention of all hands at the fat stock and wool show staged at Elkin yesterday. Tommy Vannoy of Watauga County and his entry, which won the grand championship in the cattle division, are shown at the head of the line, nearest camera. Just beyond young Vannoy, Lynn Templeton of Iredell County holds his entry, which was adjudged reserve champion. Others, with the animals they entered, include, right to left: Fred Council of Watauga, S. B. White Jr. of Iredell, and Bobby Black of Alleghany.—(Staff Photo.)

Meat And Animal Products Essential To War Effort; Farmers Respond To Call

By L. I. CASE.
In Charge Animal Husbandry Extension, North Carolina State College.

Meat and animal products of all kinds are now considered as important in the winning of this global war as are munitions, guns, tanks, ships and planes.

In many ways they are more important. Not only is it necessary that our fighting men and those of our allies be well nourished; but, it appears, that as we invade and take over countries that were previously dominated by the axis powers, we must feed and clothe the people in them. The axis powers have used starvation as a weapon of conquest. We will use food and clothing as a weapon that will continually increase our balance of power against the axis.

North Carolina farmers are being asked to increase the production of milk, eggs, beef, pork, lamb and mutton and wool. The patriotism of our American farmers has never been questioned. North Carolina farmers particularly have always done their part and they will do it now in this most serious emergency.

For the past few years North Carolina has been increasing her beef cattle numbers in a marked degree. A 22 per cent increase in cattle and calves for slaughter in 1943 over 1942 is going to call for emergency measures. Our farmers will combine long-time, improved practices with these emergency measures. They have learned from past experience that one of the best ways to increase the beef supply is by the use of good-type, registered bulls and improved feeding and managerial practices.

More Good Bulls.

These things will not be overlooked in this emergency but more good bulls will be placed on our beef cattle farms and our pastures will be improved by the use of more lime, more phosphate and better care. More feed will be grown for wintering our cattle adequately. In addition, there are three ways that our beef supply can be increased quickly and practically.

First, our farmers will cull their herds more rigidly than they ever have before. Cows that do not give enough milk to raise their calves and are poor producers for other reasons will be put on the market. Scrub and poor individual bulls will be converted into beef. Poorly bred calves will be put on the market as veals.

Second, by better feeding a year can be saved in the marketing of surplus steers. Instead of marketing the steers at three years old, better feeding methods might make it possible to put them on the market at an equal or near equal weight at two years old. This same hurry-up program would apply where farmers have been putting their cattle on the market as yearlings. By better feeding and supplementary feeding, while the calves are nursing and running on grass, the calves can be forced up to a good market weight and market condition before they are a year old.

4-H Clubs Active.

Third, our 4-H club and other rural boys and girls will do their part to increase our state's beef supply. With the proper guidance our farm youth will go all-out for the increased production of beef and other farm animals. Last year these boys and girls put 252,000 pounds or 126 tons of beef on the market. This is small compared to the 20 million head needed but is a help.

Records of this junior feeding work with beef cattle last year show that the boys and girls made an average profit of $37.18 not including the prize money that they received. If these boys and girls are properly appealed to this year, they will feed more cattle even if their profits are less. It is recommended that more home grown calves be fed out this year than in the past and that the feeding be kept on a very practical basis using home grown feeds just as far as possible.

More Lamb, Mutton, Wool.

Our farmers can accomplish two purposes by the growing of more sheep and taking better care of them. Here we have meat and fiber, both of which are badly needed. The production of more lambs and more wool will not only help in the war effort but it will put more money into our farmers' pockets.

One of North Carolina's good sheep farmers recently made the following statement: "Nothing on the farm pays better than a small flock of sheep properly taken care of." Records on farm flocks of sheep from all over the state in 1942 showed an average gross income per ewe of $14.44. The average cost of keeping a ewe a year is very little over $4 according to estimates. This leaves a net profit of $10 per ewe. When we consider the fact that seven mature sheep require the same amount of pasture and food as one mature cow, it shows the possibilities for profit with a small farm flock.

With sheep production, as with cattle production, our North Carolina farmers will continue to follow good production practices such as the use of good type purebred rams, better feeding, internal and external parasite control, and good marketing methods.

In addition, they can very practically increase the amount of lamb, mutton and wool for the market in 1943 by: First, an all-out effort to save every lamb. Not only will a higher percentage of our lambs be saved by proper care and handling but a marked increase in the number of pounds of lamb and mutton for the market can be made by better feeding.

If every sheep farmer will see to it that his ewes are fed for milk production and then creep feed the lambs in addition, a large number of extra pounds of meat will be produced. Better feeding and better management will not only increase our lamb and mutton supply but it will also insure a better wool crop.

Second, the increased poundage of lamb can be brought about by keeping our lambs a little longer and feeding them better. Normally, we like to get our lambs on the market when they weigh from 80 to 85 pounds because our metropolitan market demands a certain size leg of mutton and a certain size lamb chop. We can forget these fancy trade demands right now, however, and produce a lamb that weighs 5 to 15 pounds more. This, as has already been said, must be done by better feeding and better attention.

Third, a systematic culling of our sheep flocks to get rid of the old and poor producing ewes, and especially the poor type rams is a practical way of increasing the immediate supply of mutton. Of course, all ewes that will produce good lambs should be kept.

Imported Ewes Build Herd.

Looking forward to the 1944 lamb crop for a moment, our farmers can increase the number of sheep in North Carolina by the importation of more western ewes. Last year several car loads of northwestern crossbred ewes were brought into North Carolina and placed on farms all the way from the mountains to the seashore. These ewes are making good and, if the demand warrants, more of these good parasite-free ewes will be shipped in this year.

Too much emphasis cannot be placed upon the proper care of the 1943 wool clip. With the exception of the increase that can be brought about by better feeding, little can be done to increase our poundage of wool this year over 1942. Our sheep farmers can, however, take a number of steps that will tend to save more wool than usual. This can be brought about first by proper shearing. Every sheep farmer should take immediate steps to get his shearing equipment in good shape. This means sending the combs and cutters off to be sharpened at an early date so as to be sure that they will be ready at shearing time.

Wool can be kept in better shape with less loss by fixing up the feeding racks so that the wool will not become seedy an dchaffy. After the wool is of fth esheep's back it should be handled with extreme care. Wool will probably be worth 50 cents or possibly more per pound this year which demands that every sheep man save every bit of wool possible both from a selfish motive and for aiding in our war effort.

Continue 4-H Baby Beef Work On Practical Basis

Increased production of food crops, especially meats and meat products, has been asked by the Government in 1943. "Therefore," says L. I. Case, Extension animal husbandman of N. C. State College, "the 4-H Baby Beef Club work should not only be continued, but should be extended into more counties with more farm boys and girls taking part."

The only difference in the program will be that steers must be fattened on a practical basis so that, if necessary, they may be sold at market prices without a loss of money, Case said. Exhibitions of all livestock may be out of the picture for 1943 and for the duration of the war. This will at least curtail the paying of premium prices for 4-H calves.

"Also," said the Extension worker, "we now have ceilings on animal carcasses and on retail cuts with the possibility that ceilings will be placed on live animals in the near future. Meat rationing is an immediate prospect and will probably limit the purchasing of cattle for individual family consumption."

This means, the animal husbandman declared, that less emphasis should be placed on show ring standards. Furthermore, it means that more home-bred animals should be fed by boys and girls. Where it is necessary to acquire steers, they should be purchased at commercial feeder calf prices, and just as near to home as possible in order to avoid excessive transportation costs.

"Feeding should be on a more practical basis than ever before," he said. "It is extremely important that home-grown feeds be used exclusively with the exception of a protein concertrate for balancing the ration."

Livestock Production Gets Boost

High Quality Beef Animals Are Purchased by Leading Breeders of the State.

RALEIGH,—Livestock production in North Carolina has been given a decided boost by recent purchases of many high quality beef animals by leading breeders of the State. L. I Case, Extension animal husbandman at N. C. State College, reported here today.

For instance, J. H. Doughton and W. E. Webb of Statesville attended the recent Western Stock Show at Denver, Colorado. Doughton bought a yearling bull from the Harrisdale Farms of Fort Worth, Texas, for $1,050 and another from C. A. Smith of Chester, West Virginia, at $1,300.

Doughton and Webb also purchased more than fifty head of high quality females. Seven head came from William Kettle and Son of Littleton, Colorado, at $500.00 each and the remainder from other well known herds in this vicinity.

Case says that T. B. Bledsoe of Greensboro also recently purchased for $4,000.00, a yearling bull from the Thornton Hereford Ranch at Gunnison, Colorado.

Vice-President J. J. Barnhardt of Cannon Mills at Kannapolis is planning one of the best breeding herds in the United States and has recently added 32 Polled Hereford females and a bull from his best breeding stock in Texas.

The Hereford Journal has reported the purchases of a carload of Missouri Polled Herefords by Grover P. Fowler of Hickory, Case commented.

In his opinion, the advanced breeding represented in the securing of these outstanding individuals will leave its mark on the livestock industry of the State. More excellent bulls will be made available to head foundation herds. Better calves for breeding by 4-H boys and girls can be produced. In other words, "Blood will tell," Case said.

Beef Cattle Need Several Pastures

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Good pastures, both permanent and temporary, are the basis for economical beef production in North Carolina, says L. I. Case, extension animal husbandman at State College, in his new bulletin on raising beef cattle.

He points out that there should be several pastures for the proper handling of a herd of cattle because it is advisable to segregate animals of various ages and sexes at certain times.

He notes that good permanent pastures are found only on fertile soils which are heavy and well supplied with moisture. Fertilization is especially important for pastures and Case recommends that soil tests be made to determine what fertilizers should be applied.

For Piedmont and mountain soils experience has shown that 6 pounds of Kentucky blue grass, 5 pounds of red top, 5 pounds of orchard grass, 1 to 2 pounds of white clover, and 15 pounds of lespedeza per acre is a good mixture for a permanent pasture.

For average Coastal Plain soil a mixture of 10 pounds of Dallis grass, 4 pounds of red top, 15 pounds of lespedeza and 1 to 2 pounds of white clover is recommended.

Under average conditions, Case recommends that the inexperienced grower begin with native or grade females headed by a good bull. As to the breed, he suggests that the grower determine which breed suits him best and is best for his condition.

The breeding and raising of registered cattle is a specialized business and that only a small percentage of those entering it make a success.

A free copy of Case's bulletin, Extension Circular No. 268, may be obtained by writing the Agricultural Editor, State College, Raleigh.

Good Care Assures More Young Lambs

Saving a high percentage of the new lamb crop and getting them ready for an early market, is one of the important wartime jobs of the North Carolina farmer, according to Dale C. Snodgrass, animal husbandry Extension specialist of N. C. State College.

By following a few simple, well established practices, the sheepman can be sure of success with his young animals, Snodgrass lists some of these practices as follows:

Have the ewes in a good, strong thrifty condition before lambing, and be sure that the flock is securely separated from other stock, especially hogs.

Do not disturb a ewe at lambing time, unless she needs help, but be sure to stay on the job. Carelessness may mean the loss of a lamb. See that the young lamb nurses and does not become chilled. Should the ewe disown her lamb, try to get her to claim it.

Gradually increase the feed given to the ewe after the lamb is about one week old to stimulate the flow of milk. During lambing time, the ewe should be housed at night and during bad weather.

If a new born lamb becomes chilled, take it to a warm room and put it in warm water up to its neck. After the young animal is warm, take it out of the water and dry it thoroughly before placing it with the ewe in a warm dry place.

Watch young lambs closely during the first ten days for common ailments as constipation, diarrhea, and "pinning." For digestive troubles, give the lamb one teaspoonful of castor oil or one tablespoonful of milk of magnesia.

Dock or castrate the lamb when from one to two weeks old. The ram lambs can be castrated at the same time.

NEW MIXTURE CONTROLS SHEEP STOMACH WORMS

Stomach and intestinal worms are serious handicaps to the growing sheep industry of North Carolina, but the pests can be controlled easily by the use of a phenothiazine-salt mixture, which the sheep will eas, making individual treatments unnecessary, says L. I. Case, extension animal husbandman at N. C. State College.

In the past, growers have been giving each sheep individual treatment and this takes time. The new method of mixing one part of powdered phenothiazine with twelve parts of loose salt and feeding it to the sheep is much easier. The mixture should be placed in a salt box, which is raised a few inches from the ground, and the box should be covered on three sides to protect it from the weather. The sheep must have access to the mixture at all times. If the sheep do not eat it readily, a few handfuls of feed can be added to the box.

Case said that good managerial practices should not be neglected. On account of the feed shortage, annual grazing crops should be provided and this practice will help to keep down stomach and intestinal worms. Where permanent pastures are used, the flock should be moved from one area to another as often as practical.

In commenting on the use of the

Sheep Growers To Help In War

Group Asked To Take Care Of Wool Clip

By taking good care of the spring wool clip, North Carolina growers can be of distinct service to the men behind the guns, said L. I. Case of the Extension Division of N. C. State College in a comment today on what sheep growers could do to aid the war effort.

He said that it takes about 200 pounds of wool, or the clip from 26 sheep, to outfit a soldier with overcoat, jackets, pants, underwear, shirts, socks and hats. For annual replacements of clothing for these fighters, it takes an additional 75 pounds of wool.

As to new shearing equipment, Case said that manufacturers were for a time unable to get all of the materials needed for producing them, but that this situation has been partially corrected. And, that distributors would soon be able to fill a portion of their orders.

He urged growers to sharpen their combs and cutters early, before the shearing season begins. All equipment should be carefully checked and put in good condition, so that the best possible wool clip may be secured.

SHEARING SHEEP

It is sheep shearing time again in North Carolina and 4-H club boys o Harnett county, under the direction of the county farm agent, are seen here conducting a demonstration in the gathering of one of the nation's most important wartime crops—wool.

L. I. Case, Extension Animal Husbandman at N. C. State College, urges sheep growers to practice good breeding, good feeding, and good care for profit in sheep production. Care in shearing and handling the wool clip is very important. Where a grower does not have the proper clippers, Case suggests that several neighbors cooperate in securing an automatic shearer for neighborhood use.

Enterprising

A number of farmers in the territory adjacent to Raleigh have a few sheep, but many of them know little about how to shear the animals properly. Still fewer have adequate equipment with which to do the shearing. Therefore two enterprising State College students have gone into the sheep-shearing business during their spare time and have found their services much in demand.

The two students are C. C. Cockerham of Dobson, Surry County, and F. B. Everett of Palmyra, Halifax County.

Leland Case, livestock specialist of the College Extension Service, has helped the sheep growers and the two boys to make deals, and he says the growers are glad to have this service.

HORSE CLINIC INTEREST SEEN

Livestock Needs To Be Kept Healthy For War Work On Soil

COLLEGE STATION, RALEIGH, Jan. 31.—Interest among farmers in the horse and mule clinics now being conducted over the state has been good, D. C. Snodgrass, animal husbandry Extension specialist of N. C. State college, said today.

Because of the lack of new power farm machinery, agricultural leaders have recognized the importance of keeping farm workstock in good condition and have urged farmers to do everything possible to keep their horses and mules healthy.

Snodgrass pointed out the work of Farm Agent W. L. McGahey in Beaufort county as an outstanding example of the effectiveness of the clinics. This agent started holding the clinics in December, and when he finishes he will have conducted a clinic in every neighborhood of the county.

If McGahey had worked up plans for all these clinics, he would have had time for nothing else, Snodgrass said. Instead he made out a questionnaire and mailed it to each neighborhood leader, who canvassed his neighbors to determine those interested in having their horses and mules treated.

After such data were assembled, it was easy to schedule clinics so that everyone interested could attend.

Snodgrass reported that large numbers of Negro farmers are bringing in their workstock for examination and treatment.

Workstock Bulletin Issued By College

Horses and mules are the largest, and one of the most important, classes of livestock in North Carolina. Their value is two times as great as that of all cattle and calves, and five times as great as the value of all hogs and sheep.

With this, and the rationing of power machinery on the farm in view, the State College Extension Service has issued a new workstock bulletin to suggest better care of horses and mules on the farms. The publication is War Series Extension Bulletin No. 12, "The Feeding and Management of Horses and mules." A copy will be sent free upon request to the Agricultural Editor, State College, Raleigh.

The text for this eight-page pamphlet was prepared by Sam L. Williams who was Extension animal husbandry specialist at the college before he was recently called into the Army as a reserve officer. The publication is well illustrated and it contains suggested grain mixtures for adequate feeding of workstock.

"Raising of horses and mules," wrote Williams, "is a profitable business when they are used as a source of farm power and as a means of increasing the farm income from the sale of surplus animals produced. Four good animals can plow four acres, disc 15 acres, or harrow 30 acres a day in the spring season; do other kinds of farm work at a proportionate rate; and raise enough colts for replacements—if properly managed.

In this way, the work animals reaching an age of 6 to 7 years can be sold each year and younger animals used to replace them. A good team of well broken horses or mules will demand a much higher price than matched pairs of yearlings or two-year olds."