No. 3

	Pounds
tton seed hulls	25
rn meal	8
tton seed meal	5

No. 4

rn cob meal	15
w peas	10
ab-grass hay	10

RATIONS FOR HORSES OR MULES AT HARD WORK, PER 1000 POUNDS LIVE WEIGHT

No. 1—Florida Station

w pea hay	15
ts (grain)	13

No. 2

rn fodder	10
ts (Grain)	15
w peas (grain)	4

No. 3

rn fodder	13
rn meal	11
tton seed meal	3

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Can Live Stock Be Raised Profitably In Alabama?

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By

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CAN LIVE STOCK BE RAISED PROFITABLY IN ALABAMA?

By G. W. Carver, M. S. Agr.; D. Sc.; Director

I am confident that no other time has been more favorable than the present for every farmer in Alabama to think seriously and constructively along this line, asking himself the following questions. (I feel equally sure that with the facts before him he will have little or no trouble in deciding what course to take.)

QUESTIONS AND ANSWERS

No. 1. Is live stock necessary to successful farming?

Yes, absolutely. For centuries a good, well-cared for cow was recognized as half of any family's living, by:

a. Furnishing all the milk, butter, cream, etc., the ordinary family can use, and if properly cared for a surplus can be had to sell.

b. In addition to the above she should produce a calf every year.

c. According to Brooks, this cow will consume 25 pounds of dry matter per day, which means as a by-product, 96 pounds of manure daily, having an average composition per 1,000 pounds as follows:

COMPOSITION OF 1,000 POUNDS OF FRESH EXCREMENTS

Animal	Water Pounds	Nitrogen Pounds	Phosphoric Acid Pounds	Alkalies Pounds
Cow	840	3.0	2.5	1.0
Hog	800	6.0	4.5	5.0
Sheep	580	7.5	6.0	3.0
Horse	760	5.0	3.5	3.0
Hen	52.35	0.99	0.74	0.25
Duck	56.60	1.0	1.40	0.620
Goose	77.10	0.55	0.54	0.95

d. The above table shows that what is true of the cow is similarly true of other farm animals in varying proportions.

e. It is easy to see that our farm animals are great fertilizer factories, turning out the cheapest and best known product for the permanent building up of the soil. In addition to this farm yard manure there are also many thousands of tons of the finest fertilizers going to waste all over the South in the form of decaying leaves of the forest and the rich sediment of the swamp, known as "muck." Every idle moment should be put in gathering up these fertilizers. Make the mixture (compost) as follows:

1. Build pen to hold as much as you wish.

2. Spread two wagon-loads of muck and leaves over the bottom

of the pen; then one load of barn yard manure; build up in this way until the pen is full.

2. Put a rough shed over the pen sufficient to turn the bulk of the water from heavy rains, or mound up like a potato hill. This will prevent the excess of water from washing out the readily water soluble fertilizing constituents.

4. Put into this compost-heap all the wood ashes, old plaster, waste lime, rags, paper, and any matter that will decay quickly. Bones beaten up fine are also excellent. If you cannot get the barnyard manure make the compost without it. You will be agreeably surprised at the increased yield of crops of all kinds.

Caution. Do not allow this compost-heap to become hot enough for steam to rise from it ("fire fang"), as you will lose much of the value of the manure. If the pile begins to heat and give off a strong odor, tear down at once and scatter dry earth, leaves, or something of this kind amongst it.

5. Break land deep, if possible, (8 to 9 inches) and thoroughly; lay off rows with a middle-burster or two-horse plow; put compost in drill at the rate of 20 tons to the acre on medium land, and 25 tons to the acre on very poor land; plant directly on the fertilizer; cultivate in the usual manner.

How to Build a Pasture

If a pasture is desired, I know of nothing better than the following methods submitted by our expert landscape gardner, D. A. Willis-.on, who is making both lawns and pastures, whenever the season permits:

"Plow the area with a two-horse plow. After plowing, apply pulverized limestone at the rate of 2000 lbs. per acre on soils deficient in lime, and disc land well. Harrow and drag until a firm seed bed is formed.

"The last of September or the middle of October the following mixture can be sown per acre:

5 lbs. of Dallas grass
3 lbs. of White Dutch clover
5 lbs. of Alsike clover
10 lbs. of Burr clover
10 lbs. of Lespedeza

"Fifty pounds of Italian Rye grass may be added if planted in the fall.

"The Lespedeza should be sown in the spring. The entire mixture could be sown in early spring. The Dallas grass should be sown separately and raked in; and just before rolling, the clovers should be sown.

Hill Sides—Spring Planting

"The entire area should be cleaned of undergrowth, and plowed 8 to 10 inches deep. After plowing and before discing, the following should be added per acre:

2000 lbs. of lime stone (pulverized rock)

15 tons of manure, which will alternate with 800 lbs. of commercial fertilizer composed of:

4 % Nitrogen hot highly soluble
8 % Phosphate not highly soluble
10 % Potash

"The land should be thoroughly disced, harrowed, and dragged. Then lay off rows with a scooter plow 2 feet apart, and plant heavily Bermuda grass roots. Cover the grass roots well, and before rolling, sow the following per acre:

4 lbs. of White Clover
4 lbs. of Alsike Clover
10 lbs. of Lespedeza

"Five pounds of Dallas grass may be added to the hill side planting, but should be sown just before the rows are run for the Bermuda grass planting.

"The hill side planting should be done in the early spring in this locality, (March).

"In the fall, September or October, Italian Rye grass should be sown on the Bermuda sod at the rate of 60 lbs. per acre, and after sowing, a disc harrow should be run over the entire area once."

Well-stocked land, with the manures carefully saved and judiciously returned to the soil, will increase its productivity every year until the maximum is reached.

Experimental data bears us out in the assertion that Alabama, with its highly responsive soils, mild climate, and liberal rainfall, has almost unlimited possibilities in live stock and crop production.

No. 2. Can Alabama Produce Crops Suitable for Making the Best Kinds of Balanced Rations for Stock?

Yes. Not only for stock, but for the human family as well, giving to each group the ideal amount of vigor and strength.

The following foodstuffs can be grown with ease in Alabama, and with good pasture, several packing plants should be furnished a yearly supply of produce to pack.

The table below gives the percentage composition of some of our leading grains, grasses, and forage plants with which every wide-awake, progressive farmer is familiar.

COMPOSITION AND DIGESTIBILITY OF FODDER AND GRAIN ARTICLES

	No. of Analyses	Percentage Composition						Digestibility			
		Water	Ash	Protein	Fiber	Nitrogen free Extract	Fat	Protein	Fibre	Nitrogen free extract	Fat
Alfalfa hay (Medicago sativa)			6.46	17.98	33.62	39.28	2.66	(Water free substanee)			
Cotton Seed hulls		10.53		4.36	43.28	36.88	2.22				
Corn and cob meal	38	11.00	1.40	8.90	6.70	68.40	3.60	5.00	3.10	60.20	3.00
Cracked corn	93	11.00	1.30	10.20	2.00	71.60	3.90				
Corn stover	44	40.00	3.90	4.60	20.60	30.1	0.80	1.70	13.20	17.80	0.50
Cotton seed meal	319	7.00	6.60	45.30	6.30	24.60	10.20	38.10	2.20	19.20	9.60
Cow pea meal (Vigna catjang)	13	13.00	3.40	21.40	4.10	56.70	1.40				
Burr clover (Medicago maculata)			8.89	21.12	22.36	40.19	7.44	(Water free substance)			
Bermuda grass (Cynodon dactylon)			7.55	8.86	29.94	51.38	2.27	(Water free substance)			
Peanut meal		6.28	3.75	47.03	3.50	29.61					
Peanut hulls		14.85	3.15	6.06	61.04	13.52	1.38				
Peanut hay	2	8.34	7.05	10.31	23.14	46.64	4.52	6.53	12.01	32.41	2.98
Sweet Potatoes (Fresh)		68.34	1.12	1.93	1.11	26.76	0.74				
Sweet Potatoes (Dried)			3.61	6.25	3.26	34.15	2.37				
Sweet Clover hay (Melilotus alba)			6.58	19.31	16.44	44.78	3.20				

COMPOSITION AND DIGESTIBILITY OF FODDER AND GRAIN ARTICLES

(Continued)

Smut grass hay (green) (Sporobolus indicus)		74.02	2.01	3.13	5.20	14.39	1.25				
Velvet bean meal		11.20	3.20	22.94	3.84	52.00	6.82				
Velvet beans with pods		14.15	4.45	17.38	16.88	43.21	3.93				
Velvet bean hulls ground		14.90	6.05	4.81	25.65	47.11	1.48				
Vetch, smooth (Vicia sativa)		10.00	5.42	16.43	23.26	42.18	2.71				
Hairy Vetch (Vicia villosa)		11.30	7.90	17.00	25.40	36.10	2.30				
White Clover (Trifolium repens)		7.20	4.86	17.07	21.67	47.34	2.21				
Cheat (Bromus schraderi)		8.41	6.89	8.00	26.45	48.29	1.96				
Kudzu								11.40		39.80	1.20
Austrian winter pea											
Johnson grass (Sorghum halapense)		9.64	6.46	6.08	32.80	43.23	1.79				
Soy beans											
Oats	20	10.98	2.98	11.80	9.54	59.74	4.96	13.20	10.80	67.00	5.60
Sorghum (Water free) (All varieties)	45		1.81	5.30	28.30	55.14	5.33				
Sorghum Bagasse (Water free)			3.24	3.87	34.40	56.87	1.62				
Cow pea vine hay (Water free)	5		8.94	16.47	27.21	43.96	3.42				
Sweet potato vines (Water free)			10.01	12.26	25.55	47.89	4.29				

NOTE: The above table on "Fodder and Grain Articles," in the ain, is a compilation of ana'ytical data from almost every ex- eriment station in the South, for which I acknowledge thanks.

All who believe that Alabama is adapted to cotton growing only, ed but study the figures below to be thoroughly convinced that tton is just one of the many crops for which Alabama soils are pecially adapted.

The following interesting and valuable data was furnished by he Transportation Bureau Montgomery Chamber of Commerce, ontgomery, Alabama.

This data should give the greatest encouragement to every farmer Alabama, as these figures show in a very pronounced way that e can grow an abundance of foodstuffs suitable for making a com- ercial mixture comparable to any now on the market.

Investigations prove that what is true of Alabama applies to the ntire South to a greater or less degree.

"These statistics were compiled from Government Bulletins of the epartment of Commerce, Fifteenth Census, 1930, First and Second eries."

In 1930, the state's production was:

Corn	35,683,874 Bushels
Velvet Beans	716,238 Bushels
Soy Beans	41,312 Bushels
Peanuts	4,813,352 Bushels
Cow Peas	312,597 Bushels
Alfalfa	6,050 Tons
Sweet Sorghum Syrup	1,356,484 Gallons
Sweet Potatoes	6,601,503 Bushels

Glancing at the above figures on these eight major crops it is sy to see how greatly production could be increased by bringing e soil back to its virgin fertility.

No. 3. How can this be done, or how shall the farmer with one orse, mule, or ox, begin, with practically no tools and a soil recog- zed as literally worn out (non-productive)?

Of all the puzzling problems this one is possibly the most vexing, et it is simple if just these few points are observed.

1. Read carefully the suggestions for the making of compost; fol- w them as nearly as possible.

2. Prepare the soil as recommended, if you can, but plow from to 6 inches if you can do no better at the beginning. Pulverize the ed bed thoroughly.

3. Plant crops first that will feed both yourself and your stock; ch as, corn cowpeas, sweet potatoes, and by all means have a od garden.

4. Save the manure from every animal on the farm. Every idle moment should be spent raking up and hauling out leaves, muck, etc., from the woods and swamps. Keep the compost pile full, as already suggested.

5. Turn under a covering of weeds, grasses, etc, as often as you can get them.

If the above suggestions are faithfully carried out, within a few years your soil will be brought up to the maximum in fertility and stock raising will become a recognized necessity rather than a mooted question as it is now.

G. W. Carver, Director
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ADDENDA

The large number of letters that have come to my desk, plus the great number of persons who make personal calls in the interest of stock raising, leads me to believe that a few ideal rations will be of distinct value to any one who contemplate going into the business of stock raising, either for dairying or for meat.

I have selected the following information from various Experiment Stations and noted stock men who have successfully fed our Southern grown foodstuffs.

In using any of the following rations it can be readily seen by consulting the table showing the "Composition and Digestibility of Fodder and Grain Articles," how easy it is to make correct substitutions with your own particular foodstuffs, bearing in mind also that the food should be reduced or increased in accordance with the increase or decrease of the live weight of the animal.

RATIONS FOR MILCH COWS PER 1000 POUNDS LIVE WEIGHT

No. 1—Florida Station

	Pounds
Crab grass hay	20
Corn stover	12
Corn meal	3
Cotton seed meal	3

No. 2

Corn meal	4
Wheat bran	4
Cotton seed meal	4
Pea vine hay	15

No. 3

Cow pea hay	20
Cotton seed hulls	15
Cotton seed meal	2

No. 4

Cow pea hay	25
Corn meal	4

No. 5

Sweet potatoes	25
Corn fodder	10
Cotton seed meal	4
Corn meal	8

No. 6

Cow pea hay	20
Wheat bran	6
Sweet potatoes	10

No. 7

Corn fodder	18
Wheat bran	4
Cotton seed meal	4
Corn meal	6

No. 8—North Carolina Station

Corn silage	30
Fodder corn	8
Corn meal	3
Bran	3
Cotton seed meal	1

No. 9—Wisconsin Station

Corn silage	30
Hay	8
Corn fodder	5
Oats	4
Pea meal	2

No. 10—Canada Station

	Pounds
Corn silage	40
Hay	5
Straw	5
Bran	4½
Oats	4½

No. 11

Corn silage	45
Hay	5
Bran	5
Cotton seed meal	3

No. 12

Corn silage	30
Hay	12
Ground oats	10

No. 13—Tuskegee Institute Station

Corn cob shucks	100
Wheat bran	200
Cotton seed meal	150
Linseed meal	80

No. 14

Velvet beans	250
Corn cob shucks	100
Wheat bran	100
Cotton seed meal	200
Linseed meal	80

NOTE: To rations Nos. 13 and 14 minerals are added at the following rates:

Bone meal	2 lbs. per 100 lbs. of grain
Ground limestone	1 lb. per 100 lbs. of grain
Common salt	1 lb. per 100 lbs. of grain

RATIONS FOR BEEF CATTLE PER 1000 POUNDS LIVE WEIGHT

No. 1—Florida Station

	Pounds
Sweet potatoes	25
Corn fodder	10
Cotton seed	5
Corn meal	10

No. 2

Corn fodder	20
Corn and cob meal	12
Cow peas (seed)	8