Extracts.

Adoption of measures for the improvement of cotton yield in Madras
(From The Director of Agriculture)

The following article entitled "World cotton production record is claimed by S. C." by A. B. Bryan, former Agricultural Editor, S. C. Extension Service, U. S. A., which appeared in a recent issue of "The Cotton Trade Journal" is for information:—

"World Cotton Production Record is Claimed by S. C." Chester County Farmer gets 3·3 bales per acre in 1946. (By A. B. Bryan, former Agricultural Editor, South Carolina Extension Service)

(In the April 30 issue of THE COTTON TRADE JOURNAL, Victor Schoffelmayer, widely known cotton and chemurgic expert, described a cotton-growing contest, in Texas in 1925 when G. Mont Adams, Amith County farmer, produced 1,612 pounds of lint per acre. To his knowledge, Mr. Schoffelmayer observed, this record has never been surpassed.

No So, says H. G. Boylston, cotton improvement specialist of Clemson; S. C. Mr. Boylston forwarded us the following story about J. Harvey Neeley, Chester County, S. C. farmer, who in 1946 grew 1,655 pounds of lint per acre to take first prize in that state's annual 5—acre contest).

The South Carolina Five-Acre Cotton Contest, which has been a powerful factor for twenty years in increasing per acre yields and improving the length and quality of lint, reached in 1946 its highest pinnacle in production per acre and in percentage of lint one inch or more in staple length.

The winner of the first state prize, J. Harvey Neeley, made on five acres 8275 pounds of lint, or 3·3 bales per acre; the eight state and district prize winners average 1,122 pounds of lint per acre; and the 628 contestants averaged 602 pounds of lint per acre.

In the matter of staple length, improvement has been so noteworthy that in 1946. 100 per cent of all cotton produced in the state was 15/16 inch or longer, and 98·2 per cent was one inch or longer.

Harvey Neeley's Feat: Intensely proud but entirely free from vainglory is John Harvey Neeley, Chester county, who broke the all time cotton production record in South Carolina with his 8,275 pounds of 1-1/8 inch lint and won state prize of $ 750.

Neeley's average yield of 1,655 pounds of lint per acre is probably the record also for the entire South's Cotton Kingdom. Certainly it is a feat for this youngish farmer with only a few years of experience in farming independently since his father's death three years ago.

Neeley's contest cotton was grown on well drained field of Iridel (black jack) soil; which had been planted to cotton yearly some 20 years, with liberal quantities of stable manure each year from the nearby stables, with, of course, plenty of commercial fertiliser intelligently applied by Harvey's late father.

Secret of Success: Harvey Neeley's "secret" of success with his cotton production is really no secret. He sets it down thus: (1) the best variety available—he used Coker 100 Wilt Resistant strain 8: (2) lots of plants per acre—hills 12 inches apart on rows on 32 inches wide; (3) liberal liming and fertilizing with insistence on potash in plenty; and (4) "garden-like" attention in cultivation—"not harm a stalk". "But", he insisted, "I never could have done it without the Lord's help in providing a fine growing season".

Just a word more on Harvey Neeley's methods of production. The Iridel loam soil had 400 pounds of ground limestone each year for five years. It had abundant organic matter because of the annual applications of stable manure.

5 Per Cent Ceresan: In immediate preparation, cotton stalks were ripped out the land was fertilized with 1,200 pounds of 4—8—8 per acre, broadcast, dragged and ridged in late March. The seed, planted April 11—13, was treated with 5 per cent Ceresan. On June 3 a top-dressing of 100 pounds per acre of muriate of potash; 100 lbs. nitrate and on June 17 to a top-dressing of 100 pounds per acre of 32·5 per cent ammonium nitrate and 100 lbs. muriate of potash".

2. This crop was grown as a part of a prize competition, in which the cost of cultivation was perhaps of no consideration. The cotton was grown on 5 acres of well-drained black soil which had been planted to cotton yearly for some 20 years with liberal quantities of stable manure each year and plenty of commercial fertilizer. Prior to the year in which this record yield was harvested, the land had received 400 lbs. of ground limestone per acre for five years. In the year under report, the land was fertilised in late March with 1,200 pounds per acre of 4—8—8 manure mixture, containing nitrogen, phosphoric acid and potash in this ratio and the seed, after treatment with the fungicide-ceresan, was sown in the second week of April. In addition, the following manures were also applied:—

Date	Manure		Quantity applied per acre
3rd June	Muriate of Potash (contains 46—58% of Potash)	...	100 lbs.
	Nitrate (Probably Nitrate of Ammonia)	...	100 lbs.
17th June	Ammonium Nitrate (32—5% N)	...	100 lbs.
	Muriate of Potash	...	100 lbs.

3. It will be seen that the crop not only benefitted from the residual effects of manure applied in previous years, but it also received the undermentioned quantities of Nitrogen, Phosphoric acid and Potash in its life time:—

N	...	113 lbs.	per acre.
P_2O_5	...	96 lbs.	
K_2O	...	200 lbs.	

With this treatment this 5 acre crop gave an average yield of 1,655 lbs. of lint per acre (—4·2 bales of 400 lbs.)

4. It is perhaps desirable to conduct similar competitions among cultivators in the different tracts of this country. If the cotton Committee approves of the idea, the provinces and states will be invited to submit schemes for such contests indicating the required aid from the Committee.

A Short Note on the Manuring of Cotton at the Agricultural Research Station, Koilpatti: Manurial experiments were conducted on this station from 1903 onwards to guage the increase in yield that could be obtained by applying various manures like cattle manure, cakes and chemical fertilizers. Results showed that both cotton and cereals respond to the application of nitrogen in any form. Trials with Farm Yard Manure collected by the various systems viz., loose-box, byre and heap were done on crops—cotton, cumbu and irungu from 1903 and continued every year till 1912. The

response to the application of 10 cartloads of manure was increase in yield in cotton by 50 to 75%. Neem cake at 1,000 lbs. per acre i. e., 50 lbs. of nitrogen increased the yield of cotton by 50%. Residual effect was noticed on the succeeding crops also. Results of trials with Ammonium Sulphate at 20 lbs. per acre during 1921—22 revealed that cotton yields could be increased by 13%. Systematic trials with Ammonium Sulphate and Groundnut Cake were conducted during the years 1929 to 1935 on cotton and cereals. Two cwts. of ammonium sulphate applied direct to cotton increased the yield by 40% while 500 lbs. of groundnut cake increased the yield by 35%. Residual effect was invariably recorded in the subsequent cereals—cumbu or irungu.

2. Manurial experiments with groundnut cake and ammonium sulphate in various doses were conducted on cotton during the years 1943—44 to 1945—46 as recommended by the Indian Central Cotton Committee. Cotton responded to manuring in six trials out of seven. With increase in dose of manure increased yields were obtained. The yield results and the economics of manuring are presented in table I attached. By applying 100 lbs. N. per acre the yields could be increased by cent per cent. Doses higher than 40 lbs. nitrogen left a residual effect which resulted in significantly higher yields in the succeeding cereal crop. It can be seen from the table that the ryot will get an additional income of Rs. 60/- to 92 by applying nitrogenous manures at the rate of 80 lbs. Nitrogen and Rs. 114 to 147 by applying a dose of 100 lbs. Nitrogen per acre. By applying manures direct to cotton, the ryot not only benefits himself but also helps in increasing the production of cotton and the food crop. It has been found that the ryots get more income by applying manure direct to cotton than by applying to cereals. The economics of applying manure direct to cotton and direct to cereals is worked out and presented in table II.

3. The response of cotton to direct manuring is not unknown to the ryot. Well-to-do ryots manure their cotton crop by sheep-penning. It is only the non-availability of manure which prevents them from manuring their cotton crops. They apply all the cattle manure to the food crop, and so cotton crop is left without any manure. If sufficient manure is made available to the ryot, he can be persuaded to manure his cotton crop as well. Since the effect of manuring is spectacular, only initial propaganda is necessary to make him apply fertilizers to cotton.

4. Competitions in the cultivation of cotton by the institution of prize for the best crop in each taluk would be an incentive for the ryots to pay greater attention to cultivation. It would also enable the Department to know the highest acre yield that would be possible in the different cotton tracts.

TABLE I

Treatments	Mean yield per acre in lbs.			Extra yield over 'No manure' in lbs.					Value of manures and application	Net profit due to manuring,		Remarks
	Residual effect 2nd year.			Direct on cotton		Residual effect on cereals						
	Cotton kapas	Cumbu grain.	Irungu straw.	Cotton kapas 1st yr.	Value @ 0-6-6 per lb.	Cumbu grain 2nd yr.	Value @ 8 lbs per Re.	Irungu straw 2nd yr.	Value at 80 lbs per Re.		Cotton 1st year + cumbu 2nd year	Cotton 1st year + irungu 2nd year	
					Rs. A. P.		Rs. A. P.		Re. A P.	Rs .A ,P.	Rs. A. P.	Rs. A. P.	
Manure	492	341	4461										
Amonium sulphate to supply 20 lbs. nitrogen.	625	352	4461	133	54—1—0	11	1—6—0	459	5-12—0	18-15—0	36—8—0	40-14—0	Average of 3 years seven trials on cotton.
Do. 40 lbs.	676	377	4898	184	68—8—0	37	4-10—0	897	11—3—0	36—2-0	37—0—0	43—9—0	
Do. 60 lbs.	711	543	5450	219	89—0—0	112	14—0—0	1949	18--2—0	53—5—0	49-11—0	53-13—0	
Do. 80 lbs.	834	574	6664	321	130—7—0	206	25-12—0	2652	33—2—0	70-12—0	85—7—0	92-13—0	Average of 2 years
Do. 100 lbs.	1055	604	8976	410	166—9—0	318	39-12—0	4623	57-13—0	87-15—0	118—6—0	136—7—0	Average of 1 year.
Groundnut cake to supply 20 lbs of nitrogen	602	359	4546	110	44-11—0	48	3—8—0	844	10—9—0	18-10—0	29—9—0	36-10—0	Average of 3 years.
Do. 40 lbs.	672	379	4702	180	73—2—0	39	4-14—0	701	8-10—0	35—4—0	42-12—0	46-10—0	
Do, 60 lbs,	713	415	5247	221	89-13—0	104	13—0—0	1245	15—9—0	51-14—0	50-15—0	53—8—0	
Do. 80 lbs.	778	554	6367	265	107-11—0	186	23—4—0	2355	29—7—0	69—0—0	61-15—0	98—2—0	Average of 2 years
Do. 100 lbs,	1108	48	8922	463	175-10—0	195	24—6—0	4569	57-12—0	85-10—0	114—6—0	147-12—0	

Value of Manure: Amonium Sulphate 0--2—9 per lb.
Groundnut cake 0—1—0 ,,

Includes cost of powdering of cake, application and and covering with Junior hoe.

TABLE II

Cumbu and residual effect on cotton

Groundnut cake 0—1—0 ,, Includes cost of powdering of cake, application and and covering with Junior hoe.

114—6—0 147-12-0 } Average of 2 years

TABLE II

Direct Manuring to Cumbu and residual effect on cotton
Average yield for three years (1929—31)

Treatments	Mean yield of cumbu 1st year	Extra yield of cumbu over control	Value of extra yield of cumbu at 8 lbs per Re. 2nd year	Yield of Cotton in the next year.	Extra yield over control.	Value of extra yield of cotton 6½ as. per lb.	Cost of manure and application	Net profit of cumbu 1st year + cotton 2nd year	Remarks
1	2	3	4	5	6	7	8	9	10
	lbs.	lbs.	Rs. A. P.	lbs.	lbs	Rs. A. P.	Rs. A. P.	Rs. A. P.	
C. No manure	313			548					
A. Amm. Sulphate 2 cwts + Super 1"	749	436	54—0—0	595	47	19—2—0	54—8—8	19—2—0	
B. Gr. Cake 500 lbs. + Super 1 cwt.	636	323	40—6—0	616	68	27-10—0	42—4—0	25-12—0	

Direct manuring to cotton and residual effect on cumbu
Average yield for three years (1929—31)

Price : Kapas 6½ as per lbs. cumbu 8 lbs per Re.

1	2	3	4	5	6	7	8	9	10
			Rs. A. P.			Rs. A. P.	Rs. A. P.	Rs. A. P.	
C. No Manure	420			319					
A. Amm. Sulphate 2 cwts. + Super 1 cwt.	601	18	73—8—6	411	92	11—8—0	54—8—0	30—7—0	Amm. Sulphate : 0-2-9 per lbs.
C. Groundnut cake 520 lbs. + Super 1 cwt.	584	164	66-10—0	425	106	13—4—0	42—4—0	37-10—0	Super phosphate 0-2-0 per lbs.

Gleanings

Better Groundnuts Expected in Australia: It is hoped to develop groundnuts strains with a higher resistance to disease by crossing Australian varieties with vigorous plants obtained by the CSIRO from South America. It is also hoped that the hybrids produced will give a higher yield than the varieties now generally grown. Groundnut industry is well established in Queensland, and some success has also been achieved in northern parts of New South Wales. In the 1947-48 season the acreage in New South Wales increased to 67 compared with a mere 17 acres in the previous year and the yield was nearly 92,000 lb.

There seems, however little chance of establishing the crop in the cooler southern parts of the State. Trial crops have been grown for three years at the Yanco Experiment Farm, on the Murrumbidgee Irrigation Area, but the climate and heavy soils have proved unsuitable, and further trials in this area are considered useless. Variety trials will be continued at the Grafton Experiment Farm, on the North Coast, and in the Dumaresq River district, where irrigation is available.

Rice Crop should be a good one: Reports from the Murrumbidgee Irrigation Area, in New South Wales, indicate that the rice crop should be good this season, but not equal to the results obtained last year. In the older Griffith area, harvesting conditions have been made difficult by untimely rains. Australian rice industry is highly mechanised, and on the soils used for rice growing, wet weather creates many problems. Some growers found their machines bogged in the mud, and others had to use two tractors to pull the headers through the crop. Rice growing on the new Wakool area has begun fairly well. The crop has averaged about 1½ tons to the acre from 6,000 acres, yielding a crop worth about £A 180,000.

Australian rice yield about 50,000 tons this year: The Australian rice crop harvested from the 33,000 acres sown during the 1948—49 season will yield about 50,000 tons. The harvest is pleasing, since up to March, 1949, forecasts were very gloomy and it seemed that the first rice failure recorded in Australia might be imminent.

Cool conditions and weed infestation checked the crops originally but the grain now being harvested is excellent. Heads are somewhat smaller than last year and the average yield will consequently be lower than in 1947—48 but should reach between 32 and 35 cwt. an acre. Several of the best crops already harvested have reached two tons and over to the acre. Except for a small quantity reserved for invalids and for visiting and residential Asians in Australia, the entire crop will be exported to Eastern countries.

Important Agricultural Conference in Australia: Twenty or more scientific specialists from India, the United Kingdom, Canada, South Africa and New Zealand, together with several observers from the United States will attend the British Commonwealth Scientific Conference on agriculture to be held in Australia this month. This is the first of a series of specialist conferences recommended by the 1946 Official Scientific Conference held in London. Theme of the conference will be 'Plant and Animal Nutrition in Relation to Soil and Climatic Factors'. Leader of the overseas delegations will be Sir Edward Salisbury, Director of the Royal Botanic Garden (England); Professor E. W. Crampton, Department of Nutrition, McGill University (Canada); Dr. T. G. Mirchandani, Division of Agronomy, Agricultural Research Institute (India); Dr. E. J. Filmer, Animal Research Division, Department of Agriculture (New Zealand); Mr. J. C. Bonsma, Senior Animal Nutrition Research Officer, Department of Agriculture, (South Africa). Dr. I. Clunies Ross, Chairman of the Commonwealth Scientific and Industrial Research organisation will head the Australian delegates. Observers will include Professor W. Albrecht of the University of Missouri; Dr. Bonner, of the California Institute of Technology; and Dr. K. Hammer and Professor P. R. Stout, both of the University of California.