

exchange arising, and with the great advantage of having provided employment and commodities to countries which otherwise could not have purchased them. In this way, the Co-operative Movement would render most valuable assistance to the European economic situation. This was the first meeting on economic affairs, as far as he was aware, at which representatives of the Allied countries and ex-enemy countries had met on terms of equality to consider together economic problems, and he was convinced that international economic problems had been in the past one of the causes of war. He was satisfied that the work of the International Co-operative Alliance, conducted on such terms of mutual assistance, could contribute a great deal to the avoidance of war, which all desired. The Co-operative spirit and the Co-operative ideals of mutual help and non-profitmaking could contribute very much to the immediate solution of the economic difficulties of Europe.

*(Madras Bull : of Co-operation).*

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### News and Notes.

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*The loss in burning away cotton stalks :—*

The Pest Act which was passed last year in the Madras Legislative Council has come into operation in some districts where Cambodia cotton is extensively cultivated. The object of this Act is to check the spread of boll worm which takes six weeks to pass one generation. Therefore the ryots are to pull out the crop by the 31st of July every year, so that there may be about two months' time from the date of pulling out the previous crop to the sowing of the next year's crop.

But from the Agricultural News July 10, 1920, we understand that in the West Indies the practice is to pull out the plants and burn them. In St. Kitts, cotton stalks from an acre of unmanured land weigh 6000 lbs.

The amount of organic matter might be considered small, but in Tropical countries where the decay of organic matter is very rapid and the supply of organic manures usually inadequate, any

material which will help to maintain the humus content of the soil is valuable. It will therefore be seen that by burning the plants there is an appreciable loss of useful material every year.

The amount of nitrogen, phosphoric acid and potash in cotton plants is as follows :—

Nitrogen	2.16%
Phosphoric acid	1.40% (in air dry material).
Potash	2.35%

These figures indicate that the plants have a high manurial value. They are returned to the soil in a very raw state. Yet their value as a supply of plant food cannot be doubted.

The amount of manurial constituents returned to the soil by thus burying them is :—

Nitrogen	171.9	lbs. per acre.
Phosphoric acid	111.44	„ „
Potash	187.10	„ „

Though South Indian soils do not produce such heavy crops yet we can take the weight of plants to be 3000 lbs. an acre and the manurial constituents removed from the soil about half of what is given above. Thus it is evident that the practice of burning the plants or completely removing them from the field to be used as fuel elsewhere is detrimental to the fertility of the soil. In the first place there is the loss of an appreciable amount of organic matter so essential for the maintaining of tropical soils; and secondly the land is deprived of a valuable source of nitrogen.

The continuation of this practice leads to decreased production especially in the case of soils deficient in organic matter, unless ample supplies of organic matter are made available.

We see ryots in the neighbourhood of Coimbatore apply small quantities of town rubbish and work it into the soil. But what about the lands lying beyond? They receive little benefit.

K. T. B.

*Rust in Wheat.*

Wheat occupies 23 millions of acres in this country and stands next to rice in extent. It is the chief crop in the Central tableland and is mostly grown dry. Thus the problem of rust control of wheat is of supreme importance. Little has been attempted in this country in this direction and the contribution from the pen of Charles W. Hungerford to the June 15 Journal of Agricultural Research, Washington, on the subject of rust in seed wheat and its relation to seedling infection unravels many mysteries and the following is the summary of his conclusions:—

1. Uredinia and telia of *Puccinia graminis tritici* Erikss, and Henn. have been found embedded in the pericarp on the hilar end of kernels of wheat and sometimes along the ventral groove as far up as the middle of the kernel. Infected kernels have black hilar ends, and groups of telia appear as shining black specks under either the hand lens or the binocular microscope.

2. Only a small percentage of infection was found by examination of the hundreds of samples of wheat from the crops of 1915 and 1916. A little over one per cent was the highest quantity found in any sample. The durum wheats were found mostly commonly infected.

3. Infection undoubtedly spreads to the kernel from original infection on the rachis, rachilla, or glumes.

4. The germinating power of the seed apparently is not impaired by this rust infection.

5. When rusted kernels of wheat were sown in the field, no earlier or more severe rust infection occurred on the resulting plants than on those grown in adjacent plots which were sown with clean seed or with rust-infected seed which had been treated with the modified hot-water treatment.

6. More than 2,500 plants were grown from rusted seed in a specially constructed room in the pathological greenhouse at the University of Wisconsin, and no rust infection appeared upon any of them at any time. The conditions of growth of these plants were normal, and they produced plump grain.

7. No spread of infection from the pericarp to the young plant was found by examination histologically, although infected seeds were germinated under various conditions, simulating as nearly as possible natural conditions in the field.

8. No infection appeared upon plants grown from seed which had been covered with viable urediniospores of stem rust before sowing.

9. The results of the experimental work here reported indicate that stemrust is not transmitted from one wheat crop to the next by means of infected seed grain. Further, in the writer's judgment, the occurrence of stemrust sori in the pericarp of the caryopses of grains and grasses has no especial significance, but the infection spreads to these tissues just as it does from an infection point in any of the vegetative parts of the plant.

A. U. M.

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The Tropical Agriculturist, Vol. LV, No. 2 records a few points for the control of storage rots of potatoes. These are stated to be (1) not to bruise them in handling (2) sun drying, (3) rejecting diseased potatoes, (4) keeping storage house dry and (5) occasional disinfection by spraying with one pint formaline (40%) in 30 gallons of water with another spraying 24 hours later.

C. S. G.

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In pursuance of the G. O. No. 1402, Revenue (Special) Department, dated 30-7-1920, the Pumping and Boring section of the Agricultural Department was transferred to the Department

of Industries with effect from the afternoon of 9-9-1920 and the Presidency divided into five circles in charge of the Assistant Directors of Industries with head-quarters at Bezwada, Bellary, Coimbatore, Madura and Madras.

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At a meeting held at Calcutta on 14-9-1920 under the chairmanship of Pandit Madan Mohan Malaviya a company was floated with a capital of one crore of Rupees for preserving cows and supplying Calcutta and 25 lakhs were subscribed by the Marwaris.

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*Eradication of Loranthus—A plant parasite on jacks, mangoes, oranges or other trees.*

The Tropical Agriculturist, Volume LV, No. 2 publishes a useful note on the above subject. The following measures are reported to have been found efficacious in the United States. When present on small branches loranthuses should be pruned off carefully about a foot below the point where the parasite is attached to the branches but the usual tree-pruning shears with a long pole handle could be used here. Careless lopping or breaking off of branches should be avoided. Where the infection occurs on large branches or on the main trunk the Loranthus suckers may have been growing and ramifying for years and in this case will have penetrated into the wood at many points. These are very persistent and do not die off when the external growth is removed. The growth can be kept under check however by cutting off shoots as they appear. The Loranthus is brittle and may easily be broken off by means of a hook or cut by a knife attached to a long pole. The parasitic growth in large branches of trees were pruned off flush with the bark and carbolineum applied. At the end of 14 months no further growth of the parasite had appeared. The tree was apparently uninjured by the carbolineum. This would indicate that a strong preservative like wood-creosote or carbolineum may be applied in sufficient quantity to kill the Loranthus.

Systematic examination of tree and pruning should be sufficient to keep Loranthus in check.

C. S. G.

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*Pre-Soak method of seed treatment.*

The Journal of Agricultural Research gives a means of preventing seed injury due to chemical disinfection and of increasing germicidal efficiency. The use of formalin and copper sulphate as now practised usually causes retardation and injury to seed germination. This injury has been proved experimentally to be avoidable in the case of wheat, barley, oats and corn, by following the pre-soak method. Wheat seeds are soaked with water for 10 minutes at about 6 o'clock in the morning, drained, covered, and set away moist till noon, then soaked with formalin 1 to 400 for 10 minutes, drained, covered, and set away moist till 6 o'clock in the evening, when they should be spread out to dry overnight to be ready for planting the next day. The saturation of the seed cells and cell walls with water during the pre-soak period appears to be the factor counteracting the injurious effect on seed germination by diluting the disinfection beyond the point of injury, as it diffuses into the tissues and also by considerably decreasing the amount of water plus disinfectant solution which may enter the tissues after pre-soaking. Actual stimulation of germination has been observed repeatedly; a factor which by shortening germination *minimizes* the danger of exposure to the attack of soil organisms during this susceptible period. The presoaking stimulates dormant bacteria and possibly fungi into vegetative activity thereby rendering them extremely susceptible to the subsequent action of the disinfectant. In applying these principles to other seeds, the following factors govern the details (a) rate of absorption of water by the seeds (b) the susceptibility of the seeds and pathogens to the disinfectant and (c) the respective periods for the beginning of seed germination and of vegetative activity of the pathogen. In no case must the presoak period be continued until seed germination begins.

G. N. R.

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From the Journal of the Society of Arts, August 6th, 1920, we understand, that in Egypt Cotton seed is a product of perennial interest. The Egyptian cultivator divides his lands into three parts, one part is planted to cotton, one in dura (native grain) and one in berseem

(fodder). About 75% of the cultivated land is held by individuals owning less than two acres. No machinery is used. In Lower Egypt water is raised from irrigation ditches by hand-manipulated spiral lifts. In Upper, the water lifting is done generally by an apparatus consisting of a bucket attached to a pole with a balance weight.

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A. U. M.

From information issued by the International Institute of Agriculture, Rome, we learn that in the United States of America the area under winter wheat is considerably smaller than last year. The coming crop is estimated at only 13.2 million tons and two-third of last year's. Drought has affected crops in Algeria and southern Italy and the outlook in Poland is unpromising specially for rye. Wheat in this country shows an increase of 30% over last year's yield.

A. U. M.

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The use of Guange pods for feeding dairy cows at the Government Farm at Hope, Jamaica enabled 300 heads of cattle to be kept on a little over 200 acres of land in 1919—20. Many cows eat 25 lbs. without injury, but it is observed that the pods are dangerous if eaten in excess or mixed with silage or after they have fermented.

A. U. M.

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Dr. Gilbert Slater in reviewing Moreland's "India at the death of Akbar" in the Mysore Economic Journal for August 1920 pertinently remarks that for the labouring masses in India life is now what it was three hundred years ago. The dominant economic fact then is the dominant fact now. The Indian birth rate is very high and the rate of industrial progress is very slow. To lift the mass of the Indian population out of its condition of poverty either there must be a rapid development of the productive powers of the agricultural and non-agricultural industry or a radical change in the customs of the people with regard to marriage.

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### **Students' Corner.**

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There were only three matches played this month, as the students were busy with their examination in the second week, the College closing for the Michaelmas holidays on the 15th instant.

Hockey Vs. Reserve Police won by 5 goals to 1.

Vs. Central Recruit School won by 2 to nil.

Cricket Vs. Stanes High School won by 9 wickets.

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The students of Class II were notified that they should assemble on 1-10-1920 at Mangalore for tour in South Canara and Malabar and that they would visit places of agricultural importance and return to Coimbatore on the 16th.

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### **Estate Notes.**

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The pleasant function took place on Friday the 11th instant in the College Hall to present Mr. Gulam Dastigir, Chief Laboratory Attender, Government Agricultural Chemist's Office with the Imperial Service Order Medal. We congratulate the recipient on the recognition he has won. The Hon'ble Dewan Bahadur L. D. Swamikannu Pillai specially came from Madras to hold the Durbar and present the medal. We wish Mr. Dastigir Sahib a long lease of life and many years of well-earned rest.

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### **Crop Notes.**

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Rains are still withholding. Prospects for dry crops are not bright but wet paddy is all right.

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### **Departmental Notes.**

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**Leave:—**

Mr. P. A. Raghunathaswamy Ayyangar, Assistant to the Government Agricultural Chemist privilege leave for one month from 12th July 1920.



Mr. T. Lakshman Rao, Assistant in Chemistry privilege leave for six weeks from or after 12th August 1920 and then extension of 2 weeks' leave.

Mr. U. Vittal Rao, Assistant to the Sugarcane Expert privilege leave for one month from 23rd August 1920.

Mr. M. U. Vellodi, Farm Manager, Taliparamba privilege leave for 2 months from or after 15th July 1920.

Mr. T. Seshachalam, Assistant Farm Manager, Chintaladevi Farm privilege leave for a fortnight from or after 17th August 1920,

Mr. D. S. Subramania Ayyar, Assistant Farm Manager leave on medical certificate from 6th to 18th July 1920 (both days inclusive).

Mr. C. S. Namasivayam Pillai, Assistant Agricultural Demonstrator an extension of leave on loss of pay for six months in continuation of 3 months leave without allowances already granted.

Mr. A. Kodayya Sarma, Assistant Agricultural Demonstrator, privilege leave for one month from 23rd August 1920.

Mr. K. Govinda Pai, Agricultural Demonstrator, Bellary, leave on loss of pay for 23 days from 19th July 1920.

**Transfer :—**

Mr. P. Abishekanatham Pillai, from the Koilpatti Farm to District Work, Tirupur.

Mr. M. A. Balakrishna Ayyar, from District Work, Tirupur to Koilpatti Farm.

Mr. S. Muthuswami Ayyar, Assistant Farm Manager, Hagari to the Central Farm.

Mr. Venkobachari, Assistant Agricultural Demonstrator, Narsapatam to the Hagari Farm.

Mr. E. N. Rangaswami Ayyangar is confirmed as Assistant Farm Manager IV grade with effect from the date of entertainment as such.

**Resignation :—**

The resignation submitted by Assistant Agricultural Demonstrator V. S. Viswanatha Rao, is accepted and he will be relieved of his duties on or about the 1st of October 1920.

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**Change of Rule.**

Proposed by Mr. V. Muthusami Aiyar and seconded by Mr. K. T. Bhandari that in rule 12, for "with four student members one from each class" read with as many student members as there are classes."

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The following subjects have been adopted for discussion at the next General Body meeting of the Madras Agricultural Students' Union.

“ That in view of the coming changes which eventuate in the large employment of Indians in the higher grades of service in the agricultural department this meeting is of opinion that the time has come for a better system of higher agricultural education so as to equip the alumni of this college to occupy posts of trust and responsibility and take independent lines of research work and therefore requests government to make early arrangements to get the College affiliated to the University and thereby enable the present batch of students of the Diploma course to get the full benefit of such affiliation.”

“ That this meeting resolves that the salaries of upper and lower subordinates are inadequate and therefore begs that Government will be pleased to revise the scales as below.”

(1) Upper subordinates both scientific and agricultural sections 100-10-300, increments to be automatic.

(2) Lower subordinates 75-5-175, increments to be automatic and the period of probation should count also for increment.

## WANTED.

Applicants from Indians of the Madras Presidency for two posts of Technical Advisers on rice growing in Sierra Leone on the West Coast of Africa for a period of 12 or 18 months at the option of the Sierra Leone Government with 4 or 6 months' leave on full pay to follow. One to be a man of some scientific attainments and the other, of much practical experience. A knowledge of surveying, levelling and map drawing and a capacity to collect information on irrigation and cropping of a nature to help investigation by an expert are also needed of the former.

The salary is £40 a month for the senior and £30 a month for the junior. Free passages will be provided.

L. D. Swamikannu,  
*Director of Agriculture.*