

when the parts liable to be worn out are small detachable pieces and can be replaced with ease and at a small cost.

A. K. Subramania Aiyar.

Notes.

A paper on Grasses and Forage plants of Hawaii by the Agronomist of the station appears as Bulletin No. 36 of the Hawaii Agricultural Experiment Station. Several important grasses and forage plants are described therein. A list is also given of the undesirable and poisonous plants that are met with there and it includes among others the following that occur also in Southern India as indigenous or introduced. *Acacia Farnesiana* known as Peevalam in Tamil and Gabbu Thumma in Telugu, *Andropogon halepensis* (Johnson grass) 'difficult to eradicate,' *Chrysopogon* (*Andropogon*) *aciculatus*, *Lantana Camara* (*Lantana*), *Momordica Charantia* (Chinese cucumber or Carilla fruit) cultivated everywhere and *Psidium guayava* (Guava) are said to crowd out and replace the plants which have forage value. *Asclepias curassavica* (Milkweed), *Leucaena glauca* (Koa bush) which seems to cause falling of hair from horses' tails and known as Tagarai in Tamil, *Ricinus communis* (Castor bean), which causes abortion and *Tephrosia purpurea* (*Kolingi*) are said to be poisonous. C. T.

It has been found that some plants are able to absorb and assimilate various sugars including lactose. Lactose was found utilised by vetch, radish and onion. For maize the sugars in order of preference by the plant are glucose, levulose, cane sugar and maltose while for vetch, they are cane sugar, glucose, maltose and lactose. K. U. K. M. (Expt. Station Record. U. S. A.)

Barbado Department of Agriculture sugar cane experiment report shows that Sulphate of Ammonia when compared to dried

blood each supplying similar weight of nitrogen per acre when applied to sugarcane, has given better results. Sulphate of potash supplying 80 lbs. of potash per acre, has generally given a better yield than no potash plot. Phosphate plots have, curiously enough, given poorer crops than no phosphate plots. K. U. K. M.

The discovery regarding the functions of the bacteria inhabiting the tubercles found on the roots of certain plants has made a marked influence on the question of maintaining the fertility of the soil. What is regarded as the most remarkable of recent discoveries is the symbiotic relationship between bacteria and seed plants in certain leaves. In 1894 Trimen (late Director of Peradeniya Gardens) drew attention to the small knob like excrescences on the leaves of certain Ceylon Rubiaceæ e. g. *Pavatta Indica*. Subsequently the researches of Miche and Von Faber revealed the fact that these bacteria were also Nitrogen fixing organisms.

“Pavetta” is in high esteem as a green leaf manure in many parts. K. U. K. M. (Extract from Tropical Agriculturist).

Observations in Upper Burman Paddies.

Number of grains per plant: The plants of two varieties were transplanted singly 1' apart each way, and the number of grains counted up in each plant. Next year a number of single plant selections were made, sown and planted separately and the counts of grain taken in each. The means of these were, some much higher, some much lower and some slightly lower than the means of the original paddy mixture showing large variations among individual plants. The selection whose mean of seeds per plant is very high, gives also the highest yields of grain per acre by weight. In some cases the yield of these single plant selections are higher than those of the ordinary bulk selected ones by 1 to 20%.

Variations in Weight of Grain: Plants were selected at random in a field and weight of 1000 air dried grains noted. Then 1000 grains of each of the selections in the above field were weighed and the weight noted. The mean of none of these fell below the mean of the plants taken at random, thus showing a part of the effect of selection. This also indicates, that the production of heavy grain is hereditary and consequently that the weight of the grain can be improved by selection. The yielders of the heaviest weight of grain per acre do not, by any means, always produce the heaviest seed.

Tillering: This varies with the variety of the soil and treatment of the plants. Long duration varieties produce comparatively more tillers than short ones. Even in selection there was no striking increase in the tillering power. As the tillers of a plant increase, there is an increase in the weight of the grain; but this increase is not in direct proportion to the number of tillers produced by the plant *i. e.*, as the number of tillers increases the average yield per tiller decreases. A plant with many shoots is not always the best to be selected in yielding high yielding strains. The number of tillers will have to be considered always along with the number or weight of grains borne by each shoot. The condition of the soil also affects the number of tillers produced but there are no definite data about it. Increased fertility due to organic manures and some of the chemical manures like ammonium sulphate, affects the tillering power to a marked extent. The number of tillers produced per plant varies directly, according to the spacing given, but, then there is a limit beyond which, the total number of plants per acre becoming small, the yield will be much reduced. In bunch planting the number of shoots coming from each bunch varies as the number of seedlings transplanted, but not in direct proportion.

Red and thick rice: The appearance of red rice in a pure white riced variety is due only to the cross fertilization taking place

in nature to a small extent. Whiteness and redness of rice act as a single pair of Mendelian characters, the former being recessive. The cross fertilization may take place when the crop is a mixture of both red and white riced varieties or when they are grown close together side by side. K. R. (*The agricultural Journal of India*).

Application of Lime to the soil:—When asked to apply lime to a soil, one may get doubts as to the form in which it must be applied—Limestone, Slaked lime or Quicklime. It has been found by experiments that all the beneficial effects of quicklime and slaked lime can be obtained by the use of limestone also, even with greater safety. The effective nature of limestone depends upon its mechanical condition *i.e.*, the finer it is, the better are the results. Limestone tends to improve the tenacity of clay soils, and liberates potash from the insoluble potash silicates of the soil. It has also a favourable influence on the availability of phosphates in the soil. Since limestone contains clay and other impurities with it, its application is of a decided advantage to light and friable soils. It is always better to apply it in tons—say 1 to 2 tons per acre. For very stiff soils quicklime has been found to be better than limestone on account of its quicker action. K. R. (*From Agricultural News*).

It is indeed a vexed question for the ryot to suppress weeds, especially some of the more noxious ones which behave as parasites on crops. One of them is *striga lutea* Lour (Tam-Chudumalli) known as a root parasite on cholam, sugar-cane &c. The ryot in Vellakinar, where sugar-cane is grown as an irrigated crop under wells, knows that this weed troubles him very much; more so when lands are newly brought under garden cultivation. He therefore grows a crop of Cumbu just before sugar-cane and finds his cane field practically free from striga. The experience of the writer

and enquiries made there again show that Cumbu is not easily affected by the parasite. Therefore it may be a means of starving out the weed with growing Cumbu acting as a tantalising bait, as it were.

It is yet to be seen whether cholam will be thus benefited by a preceding Cumbu crop. K. U. K. M.

A Banana bearing two bunches: There appears a small note and a photograph with the above heading in the Bulletin of the Department of Agriculture, Jamaica, recording this very rare occurrence. It would be interesting to see whether the suckers from this plant are capable of reproducing this habit, as a double fruiting type of Banana might prove of economic value in increasing the output of bunches from a cultivated area. The expectation is, however, that this is an accidental production and not a confirmed character of the Banana plant. K. R.

Estate Notes.

The Students' Club is entirely self supporting, and depends for its funds on the subscriptions of the students themselves and other playing members, and the donations of well wishers. Donations will be thankfully received by the Secretary and will be acknowledged in the pages of this Journal.

Proposals are on foot to start a Students' Library and the matter is being investigated by a committee of students. It is hoped to get the assistance of the Government in the erection of a Combined Reading Room and Library. We shall make our needs known to our many friends and well wishers when the scheme is floated.

An interesting event in last month was a garden party given by Mrs. Chadwick on the 10th to the ladies on the Estate. Most of the European and Indian ladies were present at the gathering and a very pleasant and enjoyable evening was spent in the Botanic Gardens. The green shady lawn was looking its best and was soon scattered with moving figures robed in lively hues and the first half hour saw Mrs. Chadwick receiving the guests and exchanging kind words with them. After refreshments, Rai Bahadur K. Rengachariar's daughter sang and played on the violin and Mrs. Rengachariar and Mr. P. A. Raghunathasami Iyengar's daughter entertained the audience by their performances on the Vina. Badminton which had been improvised was rather a novel item, at least for the Indian guests, but was readily availed of by most of the European and several Indian ladies. A gramophone played at intervals by Mrs. Chadwick added to the delights of the evening. It was extremely good of Mrs. Chadwick to have taken such an opportunity to know the Indian ladies at the station.

The "Club Day" at the Officers' Club:—In commemoration of the opening day of the New club building, the "Club Day" was observed on 22nd August 1915. The celebration was strictly of a private character—none but members of the club and their children taking part in it. A Badminton tournament and a handi-cap tennis tournament were opened among the members in connection with the anniversary. In Tennis the finals were played between Mr. K. Krishnamurthi Rao and Mr. T. V. Ramakrishna Iyer of whom the former came out victorious. Four teams of 5 each competed in the case of Badminton and in the finals the team captained by Mr. P. A. Subramania Iyer won. Between 3 and 4 p. m. Mr. C. Tadulinga Mudaliar was kind enough to be "at home" to all the Club members and their children. After refreshments, Mr. Sessa Aiyar recited and explained certain Sanskrit stanzas composed by himself, touching in a humorous

way certain characteristic personal tracts of some of the members. Some of the children of the Estate then entertained the members with music. Mr. M. R. Ramaswami Sivan helped by Mr. B. V. Nath entertained the children and the members with various tricks of chemical magic. Mr. Subramania Aiyar, Head Artist, Entomology section, by his powers of Ventriloquism kept the audience in roars of laughter. The President Rai Bahadur M. R. Ry. K. Rangachariar, Avergal, then distributed prizes to the winners in the Badminton and Tennis matches and made a few remarks befitting the occasion.

Hockey matches. 31st August 1915. A. C. R. I versus Police Recruit School. A. C. R. I won by 5 goals to nil.

2nd September 1915. A. C. R. I versus Reserve Police Coimbatore. A. C. R. I won by 2 goals to nil.

Mr. T. V. Ramakrishna Aiyar, B. A., F. Z. S., F. E. S., First Assistant to the Govt. Entomologist, has been appointed acting Entomologist during the absence of Mr. E. Ballard on leave on Medical certificate. We congratulate Mr. Ramakrishna Aiyar on the promotion which he has richly deserved.

Mr. M. R. Ramaswami Sivan, B. A., delivered a lecture just before the Michaelmas holidays, on the growth of Agricultural Chemistry before the Students' club. Mr. R. C. Wood, M. A., who presided complimented Mr. Sivan for the interesting lecture.

Mr. M. O. Parthasarathi Aiyangar, M. A. L. T., Special Lecturer, Teachers' College, who is now on a short deputation at this College in connection with the scheme of Rural Schools, gave a delightful chat on "the Algae" before the Officers' Club, which was much appreciated by the members.

Mr. C. Tadulinga Mudaliar, B. A., Chief Assistant to the Govt. Lecturing Botanist, who has been connected with the Madras Herbarium for several years and who has made Systematic Botany his special field of work, has been elected by the Linnæan Society as a Fellow thereof. There are only a few Fellows of that Society in India and we offer our congratulations to Mr. Tadulinga Mudaliar F. L. S.

Departmental Notes.

On their way to the West Coast Dy. Directors of Agriculture Messrs. H. C. Sampson and R. Thomas were in camp here on the 26th and 27th instants.

Appointments, etc.;—Mr. P. V. Isaac, B. A., is appointed to act as third Assistant in Entomology on Rs. 50—10—150 *vice* Mr. T. V. Ramakrishna Iyer B. A., F. Z. S., F. E. S., on other duty as Ag. Entomologist.

Mr. M. Ramaswami Pillai is confirmed as Field man on Rs. 25—5/2—50 under Govt. Economic Botanist with effect from 11th August 1915.

Privilege leave for one month and ten days has been sanctioned to Mr. P. A. Subramania Aiyar, B. A. Second Assistant to the Govt. Agricultural Chemists.

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