

agement deal with soil characterization, management of soil and fertilizer nitrogen, biological nitrogen fixation, azolla management, organic manures and management of other nutrients, rice crop cultural practices, tillage and management of soil physical conditions. *Sesbania* when incorporated into the soil as green manure gave yields comparable to prilled urea. Results of experiments on biological nitrogen fixation, photodependent nitrogen fixation, *Azolla-Anabaena* symbiosis are also presented in this section.

The departments dealing with multiple cropping have given results on the performance of Gunn-Bellani solar radiation integrator and the effect of weather on rice yields and response to rice to weather variables. The yield constraints dealt with are socio-economic, management constraints in wet seeding, upland rice, direct seeded rice and transplanted rice.

Analysis of the economic efficiency in rice production in Punjab, Pakistan using a 'composed error' stochastic profit function was estimated and it was found that variation in actual profit from maximum profit between the farmers arose mainly from differences in farmer practices as applied to random variability. The agricultural economics department has dealt with technology change policy and equity in the Indonesian rice economy, determinants of fertilizer use in Asia, rice production stability, energy and rice production and impact of mechanical reaping and the usefulness of axial flow thresher.

It would appear that India has one of the most unfavourable ratio of price of urea N to price of paddy. The other areas where experimental data are discussed are under cropping systems programme which include agricultural management in rice based cropping systems of green manuring, intercropped rice and grain legumes and nitrogen management in rice based cropping sequences.

Agricultural Engineering Department is developing implements for use in rice based cropping systems which include minimum tillage puddler, green manure incorporating knives, upland seeder, root-washed seedling transplanter, plunger-auger injector for fertilizers, conical weeder, rotary drum dryer, rice hull carbonizer and charcoal briquetting. Ten manufacturers are now fabricating IRRI designed equipment in Southern states in India according to the report. Reapers, threshers and transplanters are being introduced. Results on the biogas production from rice residues and batch type biogas generation are presented. Mention is made of research oriented training programmes, special courses and cooperative programmes of international rice testing.

The Annual Report of IRRI will be most useful for all our Agricultural Research Institutions.

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NEWS

DRUG RESISTANCE IN MALARIA PARASITES

Drug pressure is the major factor responsible for the selection of resistance in malaria parasites and should be reduced to a practical minimum. The use of subcurative doses of drugs contributes most to this selection process and it follows that radical curative treatment, i.e., the administration of drug doses that are more likely to eliminate the parasite completely, is probably the most reliable way of

avoiding selective parasite survival. Mass drug administration for suppression, with all its associated problems including the haphazard use of drugs, should therefore be avoided. One of the safest ways of reducing the spread of resistant parasites is to reduce or interrupt malaria transmission. (*World Health Forum*, 1987, Vol. 8, No. 1, p. 20, World Health Organization, 1211 Geneva, Switzerland)
