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In This Issue

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Editorial

Increased Production Through Farmers' Continuing Education

Amidst the food shortage aggravated by population explosion, the country is facing a very bad time. Therefore, highest priority has been given to agriculture in our development planning. Recently as a result of team work of our agricultural scientists, new hybrid seeds and seeds of high yielding varieties of crops have been evolved which have made a breakthrough and revolutionized our agriculture. Many useful agricultural research findings are being piled up, but what is required most is the increasing number of innovators and early adopters for quick utilization of the fruits of modern agricultural technology.

Now it is increasingly realised that it is the human input which is the limiting factor for efficient utilization of the various advances in the physical inputs for increasing agricultural production. The best known methods of harnessing the vast tradition-bound human resource— the farmers— is through efficient and well-thought of farmers' training programme. Any such farmers' training programme must be realistic, practical, problem-based and action-oriented. For a better diagnosis of farmers' problems, it is the patient—the farmer himself or a group of farmers through their organisation—who can better explain the exact areas of pains in the profession which need first to be attended to. Sometimes the farmers' problems are complicated which require the help of many experts, administrators and policy makers to think together and evolve a 'Package of prescription' to remedy the farmers' problems and energize the farmers for new adventures in modern agricultural business.

Farmers' training should not merely be accidental. It should be a deliberate, functional and action-oriented effort. In any develop-

(*Continued on page 16*)

Farewell to Shri Thomas

Shri Thomas replying to the felicitations and farewell speeches.

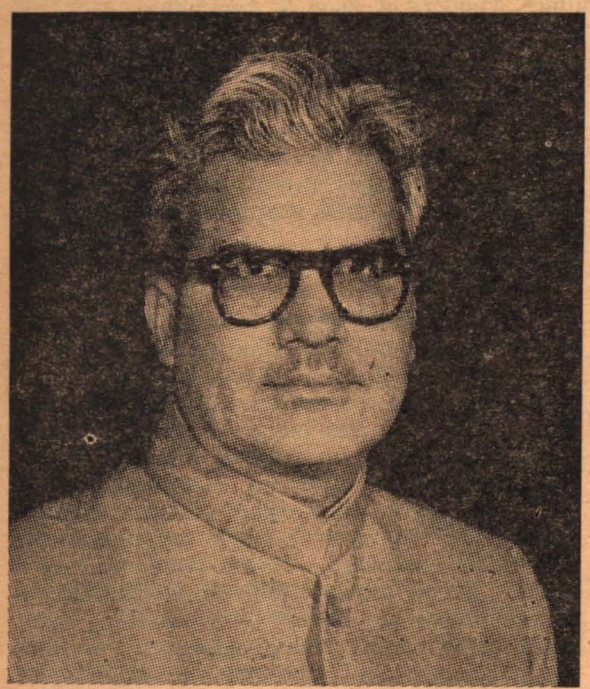
Farewell to Shri Thomas

Shri A.M. Thomas, President, Bharat Krishak Samaj, was given a reception on 9th July, 1967 at the India International Centre, on his being appointed as High Commissioner in Australia. Those who were present included members of the Governing Body of the Bharat Krishak Samaj, high government officials, foreign dignitaries and prominent people.

After the reception, a meeting was arranged where Members from various States paid tribute to the work done by Shri Thomas for the Samaj. They all highly praised his qualities of head and heart and thanked him for the manner in which he had helped the Samaj in withstanding many difficulties that confronted it on the demise of the late Dr. Deshmukh.

The staff members of the Bharat Krishak Samaj gave a farewell to Shri A. M. Thomas, President, Bharat Krishak Samaj, on the occasion of his appointment as High Commissioner of India in Australia. Shri Ram Niwas Mirdha presided over the function.

Our Acting President



Shri R. N. Mirdha

Shri A.M. Thomas, President, Bharat Krishak Samaj, on the eve of his departure to Australia as High Commissioner for India delegated his powers as President to Shri Ram Niwas Mirdha, Vice-President of Bharat Krishak Samaj, with the unanimous approval of the Governing Body of the Samaj at its meeting held on 8th July, 1967.

Shri Ram Niwas Mirdha was born in village Kuchera, district Nagaur, Rajasthan, in an agriculturalist family. Even as a student Shri Mirdha took part in student and Kisan activities. He did his International Law from Geneva University, Switzerland.

Shri Mirdha was elected to the Rajasthan Legislative Assembly in 1953 and remained Minister for Agriculture and Irrigation from 1954 to 1957. Since then he occupied the exalted position of Speaker of the Rajasthan Legislative Assembly, which post he held until 1966. Now, Shri Mirdha is a Member of the Rajya Sabha.

Shri Mirdha has been associated with the Bharat Krishak Samaj since its very inception. He was one of the trusted colleagues of the late Dr. Deshmukh, our founder President. Shri Mirdha was President of Rajasthan Krishak Samaj and Rajasthan Young Farmers Association for many years.

Shri Mirdha has most valuable experience in the cooperative field. He was the Chairman of the Committee on Cooperation appointed by the Government of India to study the Co-operative Movement in the country. In this connection he toured the whole country to study problems of cooperation and agricultural credit.

Shri Mirdha has travelled extensively and his foreign travels include visits to the U.S.A., Europe, U.S.S.R., West Indies and China.

Shri Mirdha has many qualities of head and heart which are bound to be of great asset to our organisation. Alongwith his brilliant and alert mind, he also possesses remarkable qualities of poise and dignity which inspire respect in all those who come in contact with him. The Samaj is fortunate to have such an acting President at this juncture, and it is hoped that the Samaj under his leadership will make rapid progress and play more and more significant role in the country's agricultural development.

FARMERS' TRAINING IS CENTRAL TO FARM PRODUCTION

By **Shri J. C. Mathur**

Additional Secretary, Department of Agriculture, Ministry of Food & Agriculture

In the past, talk of farmers' training programmes used to generally invite sceptical comments. This scepticism is now giving place to a vague and general appreciation of the need for providing information to the farmer on matters with which he is concerned. This is happening because of the growing change in the farmer's attitude. He has become aware that the use of new techonology in farming brings direct and perceptible benefits to him. These benefits are not marginal in the case of the use of new seeds. They are so substantial, almost phenomenal, that conversion and conviction usually follow from the very first demonstration that a farmer sees. His curiosity is sustained by self-interest.

Farmers' training, therefore, is no longer a matter of the periphery. It is central to agricultural production. It has to be part and parcel of any programme of production. However, most decision-makers still have only a vague and general idea about the usefulness of the training of farmers or of its place in a programme of agricultral production.

Mostly it is imagined that training and information imply the production of charts, films, radio programmes and booklets. Both the decision-makers and producers of the programmes are satisfied once those are produced and the material leaves the point of production. What happens thereafter is anybody's business. Little thought is given to the integral connection between a specific programme of farming and the information material that is preparad.

As for training, much of it has remained confined to the extension workers. It is assumed that once they are trained in the essentials of a programme, they would automatically pass on the contents of the training to the farmers. This hope is not much different from Lord Macaulay's hope that the middle class brought under the influence of Western education would transmit the fruits of modern knowledge automatically to the masses. Like the Englishman's hope, the hope pinned on the Village Level Workers is also likely to be belied.

Mass Literacy

Another set of people concerned with farmers' training are the educationists, specially those in the field of adult education. In their view, the issue is relatively straight. The farmer can receive and make use of informative material, provided he is made literate. Therefore they emphasise that no time should be lost in organising a programme of mass literacy, thus giving the farmers a much needed tool for using the technology. This is good so far as it goes. But the obvious difficulty is that the process of imparting literacy to a practising adult farmer (as distinct from an adolescent who has been a drop-out from the school) calls for strain without motivation. It is a deviation from his professional routine without being an entertaining diversion. Therefore the mass literacy programme's link with farmers' training will not be immediate unless it is built into their professional experience. It should be an essential and concurrent element in the adoption of new technology on farming. It should mean developing the capacity of farmers to write out the application forms for fertilisers, seeds and credit, rather than the ability to read a primer.

"Follow-up" is another basic issue involved in farmers' training. In an adult educator's language, "follow-up" means the provision of libraries and journals and reading material. To the agricultural administrator and specialist,

"follow-up" generally has had not much significance.

It is vaguely accepted that the material which is published by the various agricultural information departments would be made available to the farmer by the extension workers, even after the initial training has been given. The farmers' education is life-long, because the technology of farming is changing from time to time. It was not so until recently because the distilled wisdom of the ages had provided a sound bedrock for farm operations. That has now been shaken because of the need and pressure for reducing dependence upon the vagaries of the season. The traditional wisdom has to be supplemented by a continuing supply of new information. The extension worker by himself cannot undertake this. There must be some groups at the receiving end.

Is there any continuing institution for the farmer ? The institutions provided at the village level are the panchayats, the co-operatives and recently, in some States, the youth clubs. The panchayats are only administrative bodies; the co-operatives may not specifically be for farmers and may be dominated by various kinds of people. And the youth clubs are by no means regular and continuing.

No Farmers' Bodies

In a country with farmers forming an overwhelming majority of its population, it is an anomaly that there are no farmers' bodies. Even such organisations as the Krishak Samaj are there only at the national or the State levels. Hardly any of them could claim extensive or deep roots among the farmers. A farmers' body has to be a small institution of, say, 20 to 50 farmers. It has to be local, with a specialised interest in the farmers' problems and needs. It is such a group which could ensure a continuing point of communication to the farmers for supplying them information material and for the follow-up of their training.

These groups have another value also. One does not learn by listening or reading alone. One learns by thrashing out problems, discussing them, disputing assumptions and exchanging ideas. Farmers' groups or forums at the village levelc ould thus be acontinuing school for the adult.

Training, An Input

The Farmers' training and education should now be organised at least in those areas where specific and intensive programmes of agricultural production are being taken up. Farmers' training will become meaningful if it is treated as an essential input (along with fertilisers pesticides and irrigation) of programmes like those of the High Yielding Varieties, Multiple Cropping Intensive Cash Crops, and, in the case of animal husbandry, intensive cattle development and poultry development programme should be given the same priority and attention by the organisers of agricultural production as by by the trainers and educators.

Fortunately the experience, though somewhat fragmentary, in different parts of the country under the various extension programmes and by institutions and demonstration centres, has shown the validity of such a proposal.

The present High Yielding Varieties Programme (H.Y.V.P.), for example, was preceded by cultivation of these varieties on a limited scale. In a few cases, it was found that if farmers were given instructions about the use of various inputs when they were supplied to them, they were more attentive, assimilated information relatively quickly and responded clearly. This was tried among farmers around Ludhiana in 1965 and was later taken up in some other parts of the country as a programme of one-to-two-day demonstration-cum-training camps. Such camps have since gained popularity in several H.Y.V.P. areas.

Experience showed that at these camps, sometimes, farmers raised questions which could not be adequately answered by the average extension workers. V.L.Ws. and extension workers played a useful role in organising the camps, but their role as instructors was limited by their inadequate knowledge.

Peripatetic Specialists

The Agricultural University at Anand conducted an interesting experiment by sending out a peripatetic team of some of the specialist members of its staff to the demonstration camps. It was found that these specialists of a level higher than the extension officers could lend to the training programme a more authentic environment. They could answer the queries of farmers and stimulate their curiosity. Early experiments in courses for farmers, lasting from a week to a fortnight in the W.L.Ws. training centres, have shown that young farmers could be attracted towards a training which gives them

greater confidence in using machinery, sprayers and fertilisers. These short courses were held in 1965 at 62 farmers' Training Wings of Gram Sevak Training Centres. It was felt that if they are related to specific production programmes yielding direct benefits, they would appeal to a larger number of young farmers.

Some experiments have gone a step further. Regular Young Farmers' Institutes with courses extending to five to six months or even one year are being attempted by some institutions and State Governments. Their success has varied according to the practical nature of the training and the time that the participants could spare from their seasonal operations.

Radio Rural Forums

The success, of these attempts, specially of the one-to-two-day training camps and of the specialist's direct dialogues with farmers, has prompted a number of State Agriculture Departments to introduce such training facilities in H.Y.V.P. areas since last year. Independently of this, the information media, specially the All India Radio through their Radio Rurual Forums, have approached the farmer. The Radio Rural Forum was first tried in 1956 around Poona, which confirmed the importance of the discussion groups as an instrument of education for the rural adults. The number of Radio Rural Forums has gone up since 1956 in practically every State. These Forums, however, had concerned themselves with a diversity of rural problems rather than focussing on farm operations and the specific interests of farmers. All India Radio has, therefore, recently started 10 Farm Broadcast Units in selected centres.

Some educational institutions have also experimented with farmers' education, specially of rural youth. In Mysore, eight Vidyapeeths organised on the model of Danish Fork High Schools have been giving six monthly courses in both general education, and poultry, dairy farming and cottage industries. Some other non-Government organisations have also established institutes of this kind.

A recent assessment done by the National Council of Educational Research and Training has shown that though the attitude of the rural youth covered by these institutions indicates their desire and willingness to adopt new practices in agriculture, they have not by themselves been effective, as decision making vests with the heads of their families, that is, senior farmers whose involvement in such training programmes is more important for immediate results. Incidentally, the assessment also showed that, generally, in the package districts the production by educated farmers was higher than the average yield.

It was found by the National Council that the rural youth is also interested in studying specific subjects like insect control, soil testing use of fertilisers, repair and maintenance of machinery, irrigation methods, farm lay-out and the use of electricity. The interest is greater when pecuniary gain is in sight.

Policy Indications

All these experiements by the Agriculture Department by information media, and by educational institutions, however valuable, have been rather isolated from each other. Their real value is in certain policy indicatiosn that they give for future programmes. These might be identified as below :

1. Farmer's Training Programmes should be co-ordinated as to converge upon the principal immediate objective, namely quick and improved agriculturalpproduction. All agencies should organise their programmes according to production requirements and cropping. The co-ordination should be effected by those directly involved in production at the field level.

2. The training should result in the acquisition of skills for the adoption of new practices and the use of inputs. At some points there should be a connection between the supply of inputs and the imparting of training. It means also that demonstration in the use of these skills should be an essential element of training.

3. There should be two way communication between the participating farmers and the experts. This means that farmers should be able to address their enquiries to experts of a level higher than the average extension worker and get replies in writing and through the radio.

4. There should be continuing institutions, in the form of small local and informal groups of farmers. These groups should be affiliated to institutes where specialised and longer training would be conducted. These could be the baseline of operations and the points of convergence of the activities of various agencies and of co-ordination among them.

Integrated Training

In the light of experience gained from the unco-ordinated programmes of various agencies, it should be possible to work out an integrated programme of farmers' training in the districts that are to be covered by the High Yielding Varieties Programme.

This is not the place to present a blue-print or to furnish details of this proposal. In fact, a training programme has to avoid the rigidity of a blue-print; it should be flexible and adjusted according to the local neecs of the particular areas and of the agricultural practices in the area. Broadly, however, the programme visualises :

Demonstration-cum-training camps will be organised for one adult member per farm family in the H.Y.V.P. area, and as far as possible the inputs cards (authority for drawing high dosage of fertilisers) should be issued at these camps. These camps should be organised by V.L.W.s and Extension Officers, but should be addressed by peripatetic teams of specialists who should move according to a time-table.

Farmers' discussion-demonstration groups should be organised in each village of the H.Y.V.P. area, with about 20 farmers in each group. The groups should meet twice a week and serve as a continuing medium for imparting the latest information and discussing radio programmes and also function as a permanent extension vehicle. Each group would have a convenor from among its literate members who should receive a small honorarium to defray postage and reporting expenses. Ultimately, these discussion groups should emerge as an informal voluntary group combining the atmosphere of a club with the strength of an interest group.

Farmers' Institute or Kisan Vidyapeeths may be one in each district. Not only should they provide a number of courses (7 to 15 days and three months courses for young farmers), they should also become the constant point of reference for any difficulties, enlightenment and should seek to establish a two-way communication through correspondence and personal contacts with the farmers' discussion groups. Each farmers' institute should have a demonstration farm and modern equipment, and should be located there. The short courses to be conducted by them may be broken into short period according to the needs of the cultivators, so that they may not have to be away from their farms far too long at a time. The participants in the courses should be provided food and other facilities and free transport.

Functional literacy sub-groups should be organised by the farmers' discussion-cum-demonstration groups, for their literate members. The syllabus for literacy sub-groups should be so drawn up that during the process of learning itself, the adult learner is able to apply the skills (as he acquires them in stages) to specific farm requirements. Thus he would learn to fill in the input cards and progress cards, keep farm accounts' complete applications for loans and read simple informative material. This will make the process of learning a meaningful experience to the farmer and give him a sense of practical achievement. The object, thus, is to use Mahatma Gandhi's technique of "Co-relation" (of basic education) to adult farmers' literacy courses.The reading material will have to be specially prepared for these courses.

The radio programmes should be drawn up according to the progress of the crop season and the training imparted at the demonstration camps. The low-cost transistorised receiving set will be main vehicle of this activity. In every radio programme (twice a week), there should be some time set apart for ensuring questions sent by the farmers' groups. Recording teams should also be sent out to the villages to record the voices of the farmers who are advancing in H.Y.V.P.

Systematic evaluation at all stages should be an important feature of the project. An attempt should be made to determine the relative effectiveness of the various teaching methods and projects, singly and in combination. The evaluation should be entrusted to a suitable and experienced agency.

The new approach to farmers' training seeks to fill the "communication gaps" that have been noticed in the extension programmes. This has become possible primarily because the farmer sees in the use of the new seeds and the attendant package practices an unprecedented opportunity for the betterment of his lot. If we have to make full use of the farmers' expenses for charge, merely producing a programme over the radio or giving talks to the farmers or even supplying them the tools and the inputs would not be enough. Every aspect of the extension programme and farmers' education should revolve around the agricultural production programme.

Courtesy : Yojana.

Package of Practices for IR—8 Paddy

1. *Soil* : Soil should be well drained and must have adequate water supply to assure water for good crop culture.

2. *Season* : Can be conveniently cultivated in the first crop season. In the second crop season the cultivation should be restricted to areas where adequate water supply is available till the end of May or 1st June as the variety is of medium duration.

Sowings : Sowings should be adjusted so that the flowering period, 100 to 115 days from sowing, should not synchronise with the heavy rainfall of the locality.

State		*Sowing*	*Harvesting*
ANDHRA PRADESH	1st crop	May—June	Oct.—November
ORISSA	1st crop	June—July	Oct.—November
M.P., BIHAR, U.P., MAHARASHTRA GUJARAT AND PUNJAB	1st crop	June	Oct.—November
MADRAS	1st crop (Samba)	October	February
MYSORE & KERALA	1st crop	August	January

3. *Seed & Seed Treatment*: The seed is certified, processed and tested. The seed can be treated with Agrosan C. N. Captan before sowing.

4. *Seed Rate* : Normally 10 to 12 Kgs. of seed is sufficient for transplanting. 12 Kgs. should be sown in a seed bed of 5 cents preferably raised bed; since the seedlings are deep rooted, the seed beds should be loose, otherwise the seedlings may break.

5. *Nursery Period*: 25 to 28 days. Dip the Seedlings in a solution of copper fungicide and Endrin before transplanting.

6. *Preparation of the Field* : Field preparation should be thorough. 5000 to 10,000 lbs. green manure and 50 cart loads of well Decomposed farm-yard manure to be added.

Basal doses of Fertilisers:
100 kgs. Super Phosphate
25 kgs. Muriate of Potash
150 kgs. Ammonium Sulphate or any other Nitrogenous Fertiliser equivalent to 60 lbs.

7. *Spacing in Transplanting* :

Plant to plant	6"
Row to Row	6"

In the ordinary transplanting, see that there are 40 hills per sq. metre. Either a closer or wider spacing than this is not desirable.

8. *Second Dose of Fertilizer* : 50 Kgs. of Ammonium Sulphate as top dressing 5 weeks after transplanting or between 55 and 60 days after sowing. Apply the second dose 50 kgs. of Ammonium Sulphate or its equivalent as top dressing.

9. *Water Management* : For highest yields, planting should be made on well drained soils.. Water level should be maintained at about 4-8% depth after the seedlings have become well-established. If a good paddle was deve-

(*Contd. on page 10*)

How To Get High Yield With Hybrid Maize

Grow hybrid maize. It gives you very high yields, if you follow improved practices in growing it.

Grow hybrid maize in a well-drained soil. See that it is free from saline patches.

Prepare The Land Well

Plough first with a mould-board plough 15 cm. deep. Cultivate the field several times till it is smooth and clean. Apply heavy doses of farmyard manure before the final cultivation.

Apply 15 kilograms of 5 per cent Aldrin or Heptachlor dust per hectare (15 pounds per acre) in rows at the time of sowing, if white ants and white grubs are a problem in your area.

Buy Fresh Certified Seed

There are 7 varieties of Hybrid Maize—Ganga 3, Ganga 101, Ganga Safed 2, Ranjit, Deccan, Hi-starch and Himalaya 123. Consult your Agricultural Officer for the variety, that suits your area best. Whatever the variety buy only new certified seed, every time you sow.

Use only 16 kilograms of seed to sow a hectare (6½ kilograms per acre).

Sow In Time

In the North Eastern Himalayan Region, start sowing from the second week of March to the middle of April.

In the Western Himalayan Region, sow from the second fortnight of June to the 15th of July.

In Northern Plains, sow from the first week of June to middle of July.

In the Peninsular India, sow from June to the middle of July. For rabi, sow from the end of October to the first fortnight of December.

Sow With Care

Dibble the seed behind a plough. Do not sow deeper than 2½ centimetres. Sow in rows 60 centimetres apart. Give 30 centimetres of space in between the plants.

To get a good crop yield, apply 95 kilograms (38 kilograms per acre) of nitrogen, 60 kilograms of phosphoric acid (24 kilograms per acre) and 50 kilograms (20 kilograms per acre) of potash per hectare. If you have had your soil tested, apply fertilizers as advised.

Apply one-third of the nitrogen and the whole of the phosphatic and potassic fertilizers at the time of sowing. Place these fertilizers 5 to 7 centimetres below the seed and 7 centimetres away from the seed rows.

Give another one-third of nitrogen a month after sowing along the crop rows and the remainder, two months after sowing, that is, at the time when the tassels come out.

If your area receives high rainfall, apply the nitrogen only in two doses—half at sowing and the other half a month later.

Intercultivate Regularly

Keep the field free of weeds. If you want, you can use weedicides. Use Simazin at 1½ pounds per acre before the weeds come up and 2,4—D sodium salt at one pound per acre about 3 or 4 weeks after sowing.

If you do not use weedicides, hoe the field two weeks after sowing. Follow it up with weeding. If you expect heavy rains, earth up the crop after the second dose of fertilizers. This will prevent fertilizers from being washed away and also help in the drainage of excess water from the field.

Irrigate When Necessary

Do not allow the crop to wilt at any stage particularly at the flowering stage; otherwise your maize yield will be badly reduced. Do not let rain water stagnate in the field either. Drain it out quickly.

Prevent Pest Attack

There is always a threat of stem borer, grass hopper and weevil attacking your hybrid maize crop. Spray the crop three times with any one of the following insecticides:

Mix 48 cc (9 teaspoonful) of 20 per cent Endrin or 20 per cent BHC emulsion or 72 grams (2.5 ounces) each of 50 per cent DDT and BHC wettable powder or 50 grams of 50 per cent Carbaryl in 18 litres (one kerosene tinful) of water.

1. Give the first spray two weeks after sowing. Use 20 kerosene tinful or 360 litres (32 gallons per acre) of the spray mixture per hectare.
2. Spray again with 450 litres or 25 kerosene tin-

ful (40 gallons per acre) of the same spray mixture after 10 to 15 days of the first spraying.

3. Three to four weeks later, repeat the spray with 720 litres or 40 kerosene tinful (64 gallons per acre) of the mixture.

N.B. Application of 2 per cent Endrin granules to the whorls at 22 kilograms per hectare—once after 15 to 21 days and again after 35 to 42 days of germination and also at the tasselling stage has been found to give better control of the borers.

Control Pests

In case there is a heavy borer attack, spray the crop with 720 litres or 40 kerosene tinful of the spray mixture containing Endrin, BHC or DDT at the flowering time. Prepare the mixture in the manner indicated under 'prevent pest attack.'

If there is an attack from armyworms or red hairy caterpillars, dust 10 per cent BHC at 20 kilograms per hectare (20 pounds per acre) or 2 per cent Parathion or 5 per cent Malathion at 15 kilograms per hectare (15 pounds per acre).

Kill Rats

Kill rats by poison baiting with zinc phosphide. For controlling rats on 40 to 60 hectares, mix 1.4 kilograms (3 pounds) of zinc phosphide, 1.4 kilograms (3 pounds) of an edible oil or 1.4 kilograms (3 pounds) of molasses and 45 kilograms (100 pounds) of cereal grains. Rats are better controlled when all the farmers of an area get together and take up poison baiting jointly. Use poison-baits at the time of flowering.

If you follow these practices, a very high yield will be your reward.

Always take the advice of your Gram Sevak or Agricultural Extension Officer for any local recommendation when you grow hybrid maize.

(Continued from page 8)

loped prior to transplanting, this can be done without excessive water loss. Much water is lost by poor bunds, crabe in the bunds, etc. Special care can reduce water losses by this means.

10. *Plant Protection* :

(*a*) Dip the seedlings in Endrin and copper fungicide solution before transplanting.

(*b*) Spray the nursery once atleast 7 days with 3.6 cc of Folidol E. 605 in one gallon of water.

(*c*) Spray the transplanted crop at 20, 30, 50 days after transplanting with insecticide (3.6 cc of Parathion E 605 E.C. 46.7%) in one gallon of water when sprayed or dipped alone or 4.00 cc of Folidol when a compatible fungicide is also mixed with insecticide. If Endrin 20% E.C. is used, 12.00 cc of Endrin 20% should be used as above in one gallon of water.

Spray the transplanted crop at 40, 60 and 75 days after transplanting with copper fungicide. Add 4 oz. of copper fungicide in one gallon of water. The liquid will be sufficient to spray one acre of crop if low volume nozzle is used.

N.B. (1) Spraying during flowering should be done in the afternoon. While spraying at 40, 50 and 60 days after planting, both insecticides and fungicides can be mixed.

(2) Harvest as soon as the grains are ripe.

Agricultural Year 1967-68: Programme & Provision

As is well known, the Government of India is giving utmost priority to agricultural programme in the country, and has made adequate administrative arrangements. The following will give a brief idea of the country's programme of agricultural development during the current year.

In 1967-68 it is proposed to cultivate high-yielding varieties over an area of 16.1 million acres. Of this 7.8 million acres will be covered in Kharif. During this season 4.1 million acres will be under paddy, 1.2 million acres under jowar, 1.1 acres under maize, and 1.1 million acres under bajra.

The National Seeds Corporation has undertaken the supply of foundation seeds to all States. The Corporation, charged with the task of certification of multiplied seeds of hybrid varieties, is gearing up its machinery. It proposes to bring an area of 5,807 acres under cultivation to produce 10,395 quintals of hybrid foundation seed of maize, jowar and bajra in 1967-68. Last year 6,230 quintals were produced over 3,890 acres. Besides the Corporation will produce paddy and wheat seeds of high-yielding varieties on 2,000 acres and 1,000 acres respectively.

As regards the multiplication of further seed from foundation stocks, the State Governments would organize their own seed production programmes. The National Seeds Corporation will produce seeds over 20 per cent of the total area under seed production in the country through its registered growers. From the growers the Corporation will procure 30 per cent of their produce to meet any unforeseen contingencies.

One of the most important aspects in any programme of seed supply is the purity and quality of seed. This has constantly been kept in view at all stages of multiplication. Field organization for roughing and supervision of the seed plots is being strengthened and personnel are being trained to meet the requirements. Adequate arrangements have already been made to manufacture locally in India seed processing equipment and to distribute them in States. The National Seeds Corporation proposes to organise in 1967-68 certification of hybrid seeds of maize produced over an area of 30,000 acres, under jowar over 67,000 acres and under bajra over 20,000 acres.

In order to control the quality of seed and its certification on the basis of minimum standard for the determination of purity, germination of freedom from weeds and percentage of moisture, a comprehensive seed law has already been passed by the Parliament regulating the quality of specified seeds.

In 1966-67 it is estimated that the country is likely to have used 8 lakh tonnes of nitrogen, 3 lakh tonnes of phosphates, and one lakh thirty thousand tonnes of potash. This year the targets fixed for the consumption of fertilisers are almost double of last years. All efforts are being made to meet these requirements fully so that the programme envisaged for 1967 Kharif does not suffer for want of fertiliser. The likely demand for 1967-68 is estimated to be 13,50,000 tonnes of nitrogen, 500,000 tonnes of phosphate and 300,000 tonnes of potash. The country's present production cannot meet the entire requirements. We produce only less than half the required quantity of nitrogen (5,00,000 tonnes), a little more than half of phosphate (275,000 tonnes) and practically no potash.

The gap will be covered by imports. Arrangements have already been made. We will import in 1967-68, 850,000, tonnes of nitrogen, 225,000 tonnes of phosphate and the entire requirement of potash (300,000 tonnes).

Basic data on the best use of fertilisers in different agroclimatic regions, specially for high-yielding varieties will be provided through research. The fertiliser demonstration programme is being reoriented; single practice demonstrations are being replaced by multicrop package practice demonstrations.

Multicrop demonstrations aim at improving the total crop economy of a given area. They will be organised on 2 hectare or 5 acre block. A complete demonstration will include at least two crops and preferably three crops in a year on the same field. Eight to ten demonstrations will be organised in a block with hybrid and improved varieties of seed. The selected block will have assured irrigation and necessary soil conditions best suited to the crop selected for demonstration.

Popularisation of Soil Conditioners

Large areas under acid soils are capable of producing better crops after conditioning with lime or dolomite or basic slag. Demonstrations will be organised on 100 acre block in acid soil tracts and lime or dolomite will be supplied on the basis of soil tests for lime requirement. There will be 200 demonstrations with soil conditioners which will be supplied free to farmers.

The country gets ready for Kharif this year with minor irrigation assured for more than 3 million acres in the country. That is the achievement anticipated from the minor irrigation works undertaken in 1966-67. For this year (1967-68) the target is tentatively fixed at 3.8 million acres.

It has been recognized that minor irrigation works are capable of playing an effective supplemental role even in areas irrigated by major and medium irrigation works. Further, open wells, bored wells, tube-wells and pumpsets which enable the use of ground water for irrigation also help in relieving water-logged areas and prevent development of such conditions in new areas, where intensive irrigation from major and medium works is newly extended.

High priority has been given to the rural electrification programme to make an immediate impact on agricultural production. Rural electrification is being closely co-ordinated with minor irrigation and oriented to subserve other agricultural needs also.

Agricultural use of electricity implies the use of pumpsets and tubewells. The demand for electricity has been growing in the rural areas in keeping with the emphasis laid on minor irrigation. A sample study made by the Programme Formation Organisation in 1965 of the Rural Electrification Programme showed that farmers consume by far the highest proportion of electricity (44%).

The rates charged for electricity for agricultural uses are much lower than those for industrial uses in many States. Andhra Pradesh, Kerala, Madras, Mysore, Orissa and Punjab charge less than 9 paise per unit. In other States the charge is higher. To promote the use of electricity for agricultural purposes, it has been decided that wherever rates exceed 12 paise, the rates will be subsidised by the Government, the Centre and the States paying equally. Also, the States will maintain the same rates for three years. They will give free service to agricultural pumpsets. Even if pumpsets are removed owing to water scarcity electricity will not be disconnected. In some States, Madras, Punjab, Rajasthan and Maharashtra, farmers are allowed a few light points for farm use and electric current used by them is charged at the agricultural rate.

At the end of the Third Plan period, there were 5.10 lakh pumpsets running on power in the country. In addition, 1.40 lakh pumpsets were started in 1966-67, making the total 6.50 lakh for the country. And 1.51 lakh more pumpsets are expected to be energised in 1967-68.

The largest number of pumpsets to be energised in the current year will again be in Madras (30,000). Maharashtra and Mysore will add 20,000 each, and Andhra Pradesh and Bihar will add 15,000 each. Uttar Pradesh will supply power to 11,500 more pumpsets while Gujarat will energise 10,440 more. In Rajasthan 7,600 will be energised, and in Punjab and Haryana together 10,000. Assam for the first time will have electrified pumpsets—1,000 in number.

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Hybrid Jowar Joins Yielders Club

Recently, a few dwarf cereal varieties—Taichung paddy and Mexican wheats—hit the headlines with their high popularity.

One more dwarf cereal, not hailing from any alien land but bred at Coimbatore, was admitted early into the High Yielders' Club. It is hybrid *jowar*. This crop with its large, conical and compact ears was quick to draw admiring attention in all jowar-growing areas.

That more and more farmers having been taking to it, pushing traditional and improved varieties backstaging, is not surprising. For hybrid jowar has many good qualities.

In North and South, East and West, it has come out with big yields. In Uttar Pradesh farmer Musafir's crop yielded 4,900 kilos per hectare; an Andhra Pradesh farmer Bhimanna got an outstanding yield of 6,600 kilos; Narain Singh of Rajasthan was surprised when he harvested 5,200 kilos.

There are two varieties of hybrid *jowar*: CSH-1 and CSH-2. Both big yielders, they vary a little in their duration and grain quality. CSH-1 is of shorter duration maturing in 90 to 100 days, and suited to Andhra Pradesh and Madras, and early and medium-duration *Kharif* areas in Mysore, Gujarat, Rajasthan, Uttar Pradesh and Madhya Pradesh; the duration of CSH-2 is longer by 10 to 20 days, making this variety suitable as a mid-late *kharif* variety to be sown in August-September.

The cream white grains of the first and the pearl white grains of the second have good taste and good cooking quality in common. Cattle relish the juicy, leafy, straw, which these varieties produce in ample quantity for a dwarf—about 11,000 kilos per hectare.

Like all dwarf high-yielders, hybrid *jowar* too is able to give high yields because it takes in a large quantity of fertilisers and does not waste the feed in leafy growth or putting on a show of height. In irrigated areas, the two *jowar* hybrids can take in 60 to 70 kilos of nitrogen and 60 of phosphoric acid as basal dose, and 60 to 70 kilos of nitrogen as top-dressing per hectare. The rainfed crop will take in about 35 kilos of nitrogen and 35 kilos of phosphoric acid as basal dose and 35 kilos of nitrogen as topdressing. If the soil lacks potash, it would need to be given upto 35 kilos of it as basal dose.

Hybrid *jowars* give their best with improved practices. In each *jowar*-growing State, a set of improved practices based on experimentation and experience has been drawn up by the agricultural departments, and communicated to the farms.

Bred for low height, hybrid *jowars* are able to bear the weight of heavy ears, without lodging. Short plants make it easy for the farmer to spray and dust, which he has at the proper time for controlling pests and diseases.

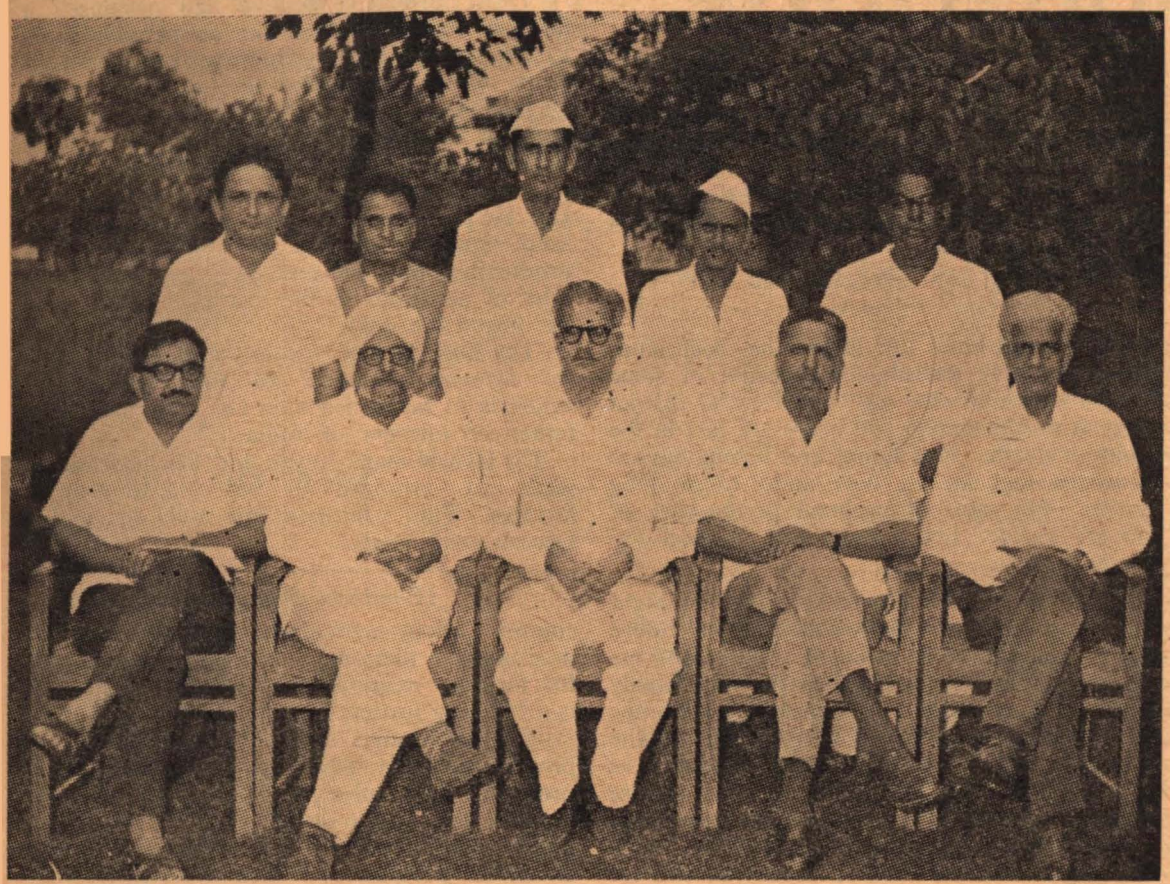
Shallow intercultivations, a little away from the plants will not only allow the field to be weed-free, but also acrate the soil.

Regular irrigation ensures that hybrid *jowar* takes full advantage of the fertilizers applied, and prevents plants from wilting. Excess of water, of course is undesirable, and proper drainage has to be provided to avoid stagnation and water-logging.

Hybrid *jowar* CSH-1 offers one more advantage; you can get one more crop of it after the harvest of the plant crop. A ratoon can be taken from it. In other words, two crops, one after the other, with seed sown only once and with not much of extra expense can be raised in about seven months in the same field. In the irrigated summer tracts of Madras, for example, the hybrid can be sown in February, and the ratoon can be raised and harvested in time for planting cotton or a *rabi* crop when becomes due.

All that has to be done to raise the ratoon crop is to harvest the plant crop 6 to 8 centimeters above ground level and allow nature to do the rest. In addition to irrigation and plant protection, the only extra expense required is the use of 40 to 60 kilos of nitrogen per hectare. For this much of extra expense, the additional grain yield of 3,000 kilos per hectare, has been common, against the average yield of plant crop of about 4,000—a handsome and profitable yield indeed !

Indian Farm Leaders Visit East Germany



From left to right

Sitting : Shri Sarvjit Mann (Haryana), Col. Lal Singh (U.P.) Leader, and Shri Ram Niwas Mirdha (Acting President, Bharat Krishak Samaj) Shri Maharaj Singh (Haryana) Shri R.B. Deshpande (Secretary, B.K.S.).

Standing : Shri J. C. Anvikar (Maharashtra), Shri V. Deshpande (New Delhi), Shri N. Z. Patil (Maharashtra), Shri R. D. Choudhry (Maharashtra) and Shri M. S. Jena (Orissa).

A delegation of Indian Farm Leaders made a tour of East Germany from 7th to 20th July, 1967. The delegation saw in East Germany the world famous leipzig Fair, agricultural Cooperatives, agricultural research and educational institutions.

S 227 SHOWS PROMISE

A dwarf wheat, which combines high yields with amber grains, has been attracting the attention of farmers in the Punjab.

In yield trials at six research stations in the Punjab, S 227 gave almost as high a yield as PV-18, which itself has been giving record yields in trials, and is now released for general sowing. S 227 outyielded Lerma Rojo by 17 per cent and C 306 by 38.2 per cent. Its straw yield is as much as that of PV-18 or C 306.

Farmers will be trying out this variety on a large scale during the coming season.

Samaj News

A Request From A Council Member

The Secretary, Bharat Krishak Samaj has received the following letter from one of our Council Members from Mizo District. The letter is self-explanatory. Members of the Samaj who would like to help the victim may do so directly, under intimation to us. The letter is reproduced below:

Sir,

As you all know our district has been plunged into heavy distrubances because of some hostile elements who try to drive the district away from the Indian soil. We are just in the midst of death. Our house and belongings are destroyed and we are now under re-grouping system. No signs of progress in the path of life are visible Let me tell you in brief my personal history.

That on the 7th November, 1966 at night some hostiles forced their way into my house and kidnapped me to be killed. They took me along with them for days and days. But luckily I was set free unkilled. On reaching my home I found all my cattle had disappeared and the garden reduced to a fallow land. Then I was in a very sad plight. Moreover, my house which is of *pucca* state, has been destroyed due to the enforcement of grouping. I am now dwelling in a small hut. I think you will see how I got ruined.

But I am not yet demoralised for I have a great confidence in you. I am also proud of you, my fellow Council members, to help push in reconstructing my corrupted economic position. I am sure you would feel pity on me if you had seen my position with your own eyes on the spot.

I, therefore, earnestly request you, as one of all India Farmer's Council members, to lift me again with reasonable financial help. Capt. Balbir Singh, who is our group centre commander, is the eye witness to my position.

Thanking you in anticipation,

Yours etc.

Sd/- (Joseph Sapremthayah)

Member of All India Farmers' Council, Mizo District (Assam).

Belgaum Krishak Samaj

Dist. Farmers Executive had organised a fertiliser federation Unit on cooperative basis to help farmers to get genuine mixtures for their crops which was needed in the district. Shri Rayanagouda Patil Vice-President of State Krishak Samaj and member Governing Body of Bharat Krishak Samaj was elected as the Chairman of this Fertilizer Production Cooperative Ltd. He presented an ad-hoc budget of 25 thousand rupees to achieve two units of mixture productions and 100 cow-dung gas plants and sales of pesticides in the district. The Society has begun the work.

The Dist. farmers forum has built its Home for farmers spending 20 thousand rupees which is to be named after Dr. Deshmukh, the father of farmers of India.

The Hybrid maize Jowar, and Taichung paddy seeds are arranged to be sold to genuine farmers. The farmers are still demanding Deccan maize seeds.

(*Continued from page 1*)

country where agriculture and agriculturists predominate, there must be long range planning for farmers' continuing education. Education is a life-long process for conservative as well as progressive farmers alike. Farmers' education programme must, therefore, be based on their problems and subsequent utilization of the modern scientific research results before it is finally established as a firm farmers continuing education programme aimed at continued increase of agricultural production in the country.

We have in this issue published an authentic and highly informative article on farmers training. The members of the Samaj have a special responsibility to help in making this training programme a success. As progressive farmers, they have not only to absorb the latest techniques of agriculture themselves but also to disseminate the same amongst their brother farmers so that the country achieves self-sufficiency and a high level of agricultural development, as early as possible.

Bharat Krishak Samaj members who have certified seeds of any crop available for sale may please write to the Editor, Krishak Samachar.

This information will be published in the Krishak Samachar for the benefit of members.

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