

## ADAPTATION AND EXTENSION OF LEY FARMING

*Dr. Cocks*

1) Objective : to develop a methodology for adapting and extending ley farming to large groups of farmers in west Asia and north Africa (WANA).

2) The proposal includes opportunities for full consultation and participation by farmers, extension agents, research scientists, policy makers, and donors. The first step is this Workshop where it will be modified, perhaps even rejected. It is presented simply as a discussion paper. While there is an indication of resources, no attempt is made to cost the proposal.

3) Three steps are described : (1) resolution of basic technical constraints including the need to select adapted pasture legumes, produce seeds, and to inoculate with effective rhizobia ; (2) establishment of participatory research groups involving both extension agents and farmers ; and (3) extension based on the training and visiting methodology (T & V) developed by the World Bank. As part of all three steps networks will be established which bring together participants from interested countries.

### STEP 1 : SELECTION OF ADPTED PASTURE CULTIVARS AND RHIZOBIA

4) Objective : to select pasture legumes adapted to specific areas, make seed available to farmers, and establish whether or not they need to be inoculated.

5) Selection of species : the research at ICARDA has shown that the best indicator of what legumes and rhizobia to use is to look at the native flora. In a quick (over-summer) survey the most abundant legumes can be identified and collected, and rhizobia isolated from soil samples. While it is desirable, it is not necessary to use, in subsequent work, an ecotype actually collected : to begin step 3 as soon as possible ecotypes or cultivars of the same species collected elsewhere can be used.

6) Production of seed : seed can be produced in two ways : by contract with commercial seedgrowers, or locally. Co-operation with Australia reduces the need for training but, at best, is only a short term solution . Alternatively a small local industry can be established under government supervision.

7) Need to inoculate : simple experiments using locally collected and commercial rhizobia, can determine the need to inoculate. To gather the greatest possible amount of information it is preferable to conduct the experiments in networks.

8) Production of rhizobia : initially by ICARDA, but during the life of the project national programmes will accept this responsibility.

## **STEP 2 : ESTABLISHMENT OF PARTICIPATORY RESEARCH GROUPS**

9) Objective : to test, adapt, and validate ley farming on farmers fields through consultation and joint experimentation with farmers.

10) Farmer participatory research (FPR) is modelled on the research at Tah in north Syria. It involves the selection of sites, collection of base data (by survey), establishment of pastures on farmers fields, management of the fields by farmers, and all-party discussions to pinpoint the weaknesses in ley farming and to adapt the technology.

11) Extension agents will participate and ultimately lead the research. Field days are held to obtain criticism and to extend the research to wider audiences. FPR can also be used to train subject matter specialists and extension agents in ley farming technology.

12) Selection of sites : sites should be chosen by participating farmers within guidelines : ownership of livestock and land, willingness to use at least 1 ha of 1 and in the research, and avoidance of strongly atypical farmers (eg large landholders in an area of predominantly small farms). In doing so the machinery used will be that normally available. Fences will not be erected.

13) Compensation : because of the risk there is a good case for renting land in the first year on the basis that it will be available for three years. Farmers should not be expected to bear the costs of catastrophic failures, and in the event of failure payment in kind should be allowed.

14) Networks should be established. It is a good idea for participating farmers to visit new areas to advise and encourage new farmers. International visits eg between Syria and Jordan- have proved worthwhile. On the broader scale there should be provision for technical people to meet frequently, both within and between countries.

15) Impact assessment : Should be after three years, and be based on biological, economic, and social data. It should be facilitated by closely monitoring the sites through all stages : yields, prices, changes in soil fertility, changes in farmers, attitudes, and so on.

### STEP 3 : TRAINING AND VISITING (T% V)

16) Objective : to extend the results of on-farm research to farming communities.

17) From the beginning of FPR the research can be used both to plan extension and to train extension agents and subject matter specialists. In this way farmer feed back be built-in to the project.

18) Training will, however, be needed in extension methodology, management of extension programmes, and in technical aspects of ley farming. An essential part of T & V is to increase the self confidence and knowledge of extension agents and subject matter specialists in order to enhance their leadership. ICARDA, using both in-country and headquarters training can take responsibility for technical training. Training in extension methodology will need specialists.

19) Back-up : once extension proper begins it will need back-up from research scientists and subject matter specialists, and close supervision . For T & V to succeed extension agents need technical, moral, and logistic support : that means a continuous flow of information, the feeling that what they are doing is important, and the means to do the work.

20) Farm visits should be planned in consultation with farm leaders in the target areas. formal ways of meeting with farmers should be established and the information obtained fed back to the extension supervisors. Above all, the flow of information should proceed in two directions, both from and to the farmers.

21) Scope of the project : areas representative of the Mediterranean littoral, inland, and high elevation areas are desirable - say Morocco, Syria, and Turkey, respectively. Within any country no more than 1000 farmers should be targetted in the first phase of the project.

22) Resources : since it is desirable for there to be international co-ordination, a managing agent, with project manager and training specialist are needed. Within each country a subject matter specialist and at least two extention agents are needed. If the option of in-country seed production is chosen a seed harvester and seed production specialist will be needed. Alternatively up to 30 tonnes of seed can be imported. Other items include :

- Vehicles
- Extension hardware
- workshops and conferences
- travel between and within countries
- training expenses

## SEQUENCES OF EVENTS

23) Year 1 : workshop to plan the project, selection of areas in which to work, survey of native legume flora and collection of seeds and rhizobia, need to inoculate experiments on farmers, fields, selection of pasture species, selection of on-farm sites, establishment of pastures on farmers fields, selection of extension agents and subject matter specialists, training both on farmers fields and in special courses, and aquisition of seed.

24) Year 2 : continued selection of cultivars and assessment of need to inoculate, field days on farmers, fields, selection of target areas for extension, continued training, and a workshop to discuss progress.

25) Year 3 : commence extension programme, continue on-farm research, continue training of extension agents, workshop to discuss progress.

26) Years 4 & 5 : continue the project as in year 3, assessment of the project at the end of year 5.

## SUGGESTED POINTS FOR DISCUSSION

27) The following are points which the workshop may feel need discussion :

a - What are the technical constraints, and what are research topics for on-station research ?

b - Is the FPR approach justified ?

c - Shouldd we use T & V ? What are the alternatives?

d - Do we need a management agent, and who should it be ?

e - What staff are required ?

f - What other resources are needed ?

g - Is there enough consultation and what form should it take ?

h - Where should the training take place : eg ICARDA for technical aspects, who for extension and seed production ? What other training is needed ?

i - Who should supervise the extension ?

j - Which donor should we approach ? Should support be on a country basis, or should we seek support for the whole project ?

k - Should we begin with one country, or more than one ?

l - What options (contract or local) should we choose for seed production ?

## LIST OF PARTICIPANTS

	NAME	COUNTRY	SPONSOR	PRESENCE
1.	Maatoughi, E.	Algeria	ICARDA	
2.	Abdelguerfi,	Algeria	ICARDA	
3.	Crawford, E.J.	Australia	IBPGR	
4.	Halse, N.	Australia	ICARDA	
5.	Webber, G.D.	Australia	ICARDA	
6.	Francis, C.	Australia	IBPGR	
7.	Toledo, J.	CIAT	CIAT	
8.	Papastylanou, I	Cyprus	ICARDA	
9.	Riveros, F.	FAO	FAO	
10.	Ben-Ali, N	FAO	FAO	
11.	Prosperi, J.M.	France	INRA	
12.	Conesa, A.	France	ICARDA	June 25
13.	Tabari, H.S.	Iran	ICARDA	
14.	Dashlibrown, N.	Iran	ICARDA	
15.	Piano, E.	Italy	ICARDA	
16.	Porceddu, E.	Italy	ICARDA	
17.	Salerno, R.	Italy	Italien Gov.	June 25
18.	Falcinelli, M.	Italy	Univ. Perugia	
19.	Lorenzetti, F.	Italy	Univ. Perugia	
20.	Russi, L.	Italy	ICARDA	
21.	Nabulsi, H	Jordan	ICARDA	
22.	Reeve, R.	Jordan	SAGRIC	
23.	Turk, A.	Jordan	ICARDA	
24.	El-Ouachi, B	Libya	ICARDA	
25.	Sabeta, A.	Libya	LARC (Libya)	
26.	Christiansen, S.	Morocco	MIAC	
27.	Al-Faiz, C	Morocco	ICARDA	
28.	Boulanour, B.	Morocco	ICARDA	
29.	Jaritz, G.	Morocco	GTZ	
30.	Granda, M.	Spain	ICARDA	
31.	Moreno, V.	Spain	IBPGR	
32.	Mawlawi, B.	Syria	ICARDA	
33.	Tawil, W.	Syria	ICARDA	
34.	Sweedan, Y	Syria	ICARDA	
35.	Mersni, A.	Tunisia	ICARDA	
36.	Erkan, O.	Turkey	ICARDA	
37.	Savas, M.	Turkey	ICARDA	
38.	Tahtacioglu, L.	Turkey	FAO	
39.	Eardly, B.	USA	IBPGR	

	<b>NAME</b>	<b>COUNTRY</b>	<b>SPONSOR</b>	<b>PRESENCE</b>
40	Cocks, P.S.		ICARDA	
41	Beale, P.		ICARDA	
42	Materon, L.		ICARDA	
43	Nordblom, T.		ICARDA	
44	El Monein, A.		ICARDA	
45	Sawmy, H.		ICARDA	
46	Reid, R.		IBPGR	June 30
47	Van Sloten, D.		IBPGR	
48	Adham, Y.		IBPGR	
49	Perret, P.M.		IBPGR	June 30