



their needs. In the areas of Uganda where women use animal traction to some extent, they wished for greater access and training. And, in areas where it is not used, there was great interest in knowing more about it and in seeing how it worked.

In Zambia and Zimbabwe, where women are much more involved in working with animal traction, there were many complaints about the weight of the implements, especially the five-tine cultivators built in Zimbabwe. The women claimed that they found it impossible to handle these cultivators when turning on the headland, and some even claimed that they fell over when trying to turn.

There were complaints about the difficulty in moving the lever for adjusting the working width of the cultivator. What was required was an easier system for adjust-

ing the width, because the row spacing is never as precise as it should be.

“Men don’t really appreciate all the work that women do, even when it is increasing all the time. It is normal, traditional, and expected, just like a dog is expected to bark and is not appreciated any more if it barks more!”

“Men just marry more women to have more free labour on the land.

Women are used as income-generating resources.”

Field researchers, Zambia

“Among themselves, men will often praise their women and their work, but no man will ever praise a women to her face. He thinks that doing so would spoil her and weaken his position of power.”

Male field researcher, Burkina Faso

In Senegal, where the working width of most hoes can only be adjusted with a spanner or clamps and bar screws, it was suggested that it should be possible to do this by closing and opening the normal steering/lifting handles. In other countries, it was suggested that ‘something like a bicycle brake-lever’ on the handles should be invented. Such mechanisms may not be feasible from the engineering standpoint, but easier adjustment of the working width is most definitely required. Ideally, it should be possible to make such adjustments while moving along the row.

Many women said that the handles of the Zimbabwean implements were too high and were not adjustable; whereas in Senegal and Burkina Faso, the handles of most implements can be adjusted. Women also had trouble in lifting the zigzag harrows around obsta-

cles, and it was suggested that the harrows should have a lifting handle at the rear.

The ox-carts used in Zimbabwe came in for much criticism. The pneumatic tyres do not last very long; women find it difficult to repair punctures; and both sexes said they would much prefer solid rubber tyres. The lack of brakes on the carts makes it difficult to control them and can lead to accidents.

Many women’s groups said it was hard work to carry water to their vegetable plots in watering cans or buckets and expressed the desire for small hand-operated irrigation pumps for this purpose. A demonstration of one such pump made a very positive impression on women in Zimbabwe, but they felt it was beyond their means (approximately US\$ 110).

Many groups said tools and implements were expensive. In Burkina Faso, even the blacksmith-produced hoes that cost about US\$ 1.75 but need to be replaced

every year, were found to be too expensive for people in the Central Plateau.

It was only in Zimbabwe that any women's groups mentioned small tractors as a solution to their problems.

### **Willingness to Work with Technicians to Develop Better Tools and to Pay More for Improved Versions**

In all the countries reviewed, both men's and women's groups were interested in cooperating with researchers and specialists to develop better tools and implements. In some countries, particularly Zimbabwe, the possibility of holding talks with manufacturers and technicians was received with enthusiasm. However, one women's group was doubtful about working with technicians, claiming that men were often difficult to work with because they were insensitive to women's feelings and needs.

In all the countries reviewed, there was a general willingness to pay more for tools if they were truly better and more efficient. It is clear that there are limits to what the poor farmers can pay for their tools and implements – as witnessed by the comments regarding the water pump in Zimbabwe, which was desired by the women's group but was far beyond their financial means.

## **General**

In the authors' opinion, there is no 'quick fix' for improving the production tools and implements used by women farmers in Africa. However, over time and with appropriate action by governments, development agencies, NGOs and the private sector, the situation could be very much improved. The constraints, and actions necessary to overcome them, are described below.

## **Limited Resources Available to Women**

The main constraint faced by women is the limited amount of resources available to them – a direct consequence of their low socio-economic status in society. With little access to cash income, even less access to land and credit, men who generally consider that it is quite normal for women to do so much work and for that workload to increase, there are formidable barriers to women being able to take matters into their own hands and invest in better production technology. Even donkeys and lightweight cultivators to go with them are beyond the reach of most women, unless their husbands cooperate in the purchase.

It is true that men's groups talked positively about the need to improve women's production technology, but for them to do anything practical about it may be a different matter. The societal norms are based on a centuries-old perception of male dominance and control, and individual men may see their power at risk if they start behaving differently. In addition, any man in a rural community who has progressive attitudes towards women risks being criticized and ridiculed by his more traditional peers.

The work already done to promote women's groups is remarkable, and provides almost the only way to help women gain access to status and production inputs. However, care must be taken to avoid creating a backlash from men by giving the impression that women are especially 'privileged', as has already happened in some countries and is now beginning to happen in others.

### **Recommendations**

- Governments, NGOs and religious organizations should make deliberate, intensified and well-planned efforts to create fuller awareness about the role of women farmers in the economic and social life of the country and their special needs in production technology. Target audiences should be male heads of household, private sector importers and manufacturers of tools and implements, extension and other development workers, government research institutes, and policy makers in the area of mechanization, etc. Mass media and interpersonal communication should be used for these efforts.
- Work with women's groups should not only continue but be expanded. However, in order to reduce any backlash of resentment among men, governments, NGOs and international development agencies should follow the examples already set in some countries where the new focus is on the family unit, and where a few men are included in women's groups – but not

enough to dominate the situation!

- Changes in women's access to input resources, e.g., land and credit, will take time, even with good and persistent communication activities to change attitudes and behaviour in society because the present situation is rooted in the culture and traditions of the people. In the meantime, governments, development agencies and NGOs should focus more attention on women's production tools and implements in their development programmes. They should study the socio-economic and technical environment for responding to demand-led interventions for credit, tools, implements and draught animals. (The study and assessment of demand should be conducted with qualitative research methods similar to those used for the present study.)

### **Weeding as Women's Hardest Job and as a Major Constraint to Increased Production**

While women see hand-weeding as their hardest job and as a major constraint to increased production, it also offers the greatest opportunity for improvement. The information obtained from Zimbabwean women about the difference in the time required to weed after a first pass, with and without an animal-drawn cultivator, appears to offer a major opportunity for saving time and effort and improving production.

Light-weight three-tine cultivators for donkey draught could be one answer. Obviously, however, their introduction and use would depend on wider application of planting in rows. The relatively cumbersome way of marking rows with a wire or cord, generally used in the eastern and southern African countries, could be substituted easily by the simple home-made row marker, like a large rake, found in Burkina Faso. It is certainly faster and easier, for it marks three rows at a time and can be pulled across the plot by one person.

A further consideration would be the need to ensure proper animal care and health services for the donkeys.

Finally, row planting and inter-row weeding with animal traction might allow for more general use of push-pull hoes, such as the Senegalese *hilaire* or longer-handled traditional hoes, even in soils that are heavier than those in Senegal. The study team watched women weeding with very short-handled hoes in a field of randomly sown groundnuts, and it was evident that the short handle allowed them to make circular movements around the base of the plants that they could not have made with a long handle. The short handle, and their bent backs, also allowed them to exert more power. However, if they were only weeding the inter-plant space in the row, these circular movements would be less necessary; and, furthermore, if most of the soil had been loosened by the animal-drawn weeder, it might not have been necessary to exert the same amount of power. Therefore, longer handles or push-pull hoes may allow the worker to take a more erect and less fatiguing posture without reducing too seriously the effectiveness of the weeding task.

At all costs, the situation prevailing in some countries where animal traction was used only for primary tillage, creating even larger areas for women to weed by hand,

must be avoided because animal-draught ploughing is senseless unless it is possible to follow it up with animal-draught weeding.

#### **Recommendations**

- Development programmes supported by governments, NGOs and international agencies should, with the participation of project beneficiaries (especially women's groups), study the possibility of introducing donkey traction, especially for inter-row cultivation.
- If conditions appear favourable for donkey traction and it would meet a felt need, the development programmes should provide credit, implements, donkeys, training, spare parts and any other supporting services required, particularly in the area of animal health and care, bearing in mind the problems that occur if credit is provided and the animals then die.

#### **Lack of Information Flows Between Importers/Producers of Tools and Farmers and the General Isolation of This Commercial Sector**

The study brought out a serious lack of consultation and information flows between the importers/producers of tools and implements and their users. The same problem also exists, albeit to a lesser extent, between blacksmiths and farmers. As long as these problems persist, it will never be possible to offer tools that meet the felt needs of today's mainly women users. The private sector that imports or manufactures tools and implements seems to have a captive market and a take-it-or-leave-it attitude. In most commercial activities in industrialized countries, a prerequisite for success is market research to know one's customers and systems of follow-up with them, whereas the tool importers and manufacturers in the countries of the study seem largely to ignore this aspect. And they are able to do so because farmers, uninformed, passively buy whatever they find available in their local store. Nor do extension services become significantly involved in issues of tools and equipment, since their main concern usually is to provide advice on other inputs and on production techniques.

Another problem is that the commercial sector involved in tools and implements is generally isolated from policy and development issues and is not seen as an essential partner by governments, NGOs or donor agencies. Indeed, the private sector is often considered by government and development institutions as being merely money-oriented and crassly commercial, whereas if it is properly approached and involved, synergy can be created with the private sector for the benefit of all.

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2. The initiative to seek women's participation in animal-traction training should come from the institutions, not from rural men, for women must not see it as an initiative by men to make them do even more work. Rather, it must appear to be the institutions that are trying to help women to better assume a task which is, in any case, coming more and more their way, and to reduce their workload with hand tools.

A negative example is the way development projects often procure tools and equipment from outside the country or area and thereby damage local suppliers' interests. Working with them in a constructive way would strengthen their long-term capacity to provide more appropriate tools and services.

In many countries, blacksmiths are the main providers of tools and implements, but their knowledge and skills are often too limited to enable them to provide the necessary designs and quality. In addition, frequently they encounter problems in obtaining adequate supplies of good-quality raw material.

#### Recommendations

- Governments, NGOs and the donor community should work much more closely with the importing and manufacturing private sector. Most countries now have bodies concerned with policies for agricultural mechanization or rural technology. One such body in each country could be made responsible for creating a working group on agricultural production technology, with special reference to the needs of women. This working group should, of course, include the private sector; and it should provide a forum for ensuring that the private sector pays more attention to gender issues in the tools and implements that it imports or manufactures, undertaking market research and creating follow-up links with customers. The aim should be to seek the private sector's constructive involvement and, at the same time, increase its capacity to meet farmers' needs, particularly those of women.
- Blacksmith training programmes should be expanded to provide guidance in the design of tools and implements. Issues such as implements for different sizes and types of animal also should be covered.
- The extension services should go beyond providing their traditional type of advice and give farmers the type of information that will help them take the right decisions about tools and equipment.
- In the context of donor-supported projects, the question of production technology for women should be accentuated. Studies and discussions with women and men in the project area(s) to determine the demand for production technology should be followed by the setting up of a project-level working group that includes women and men farmers, blacksmiths, technicians and vendors of tools/implements. These discussion groups should meet every few months for the purpose of exchanging information and taking joint decisions on the tools and implements required by the women in the project area.

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3. No research was ever done to find out why these pumps were not adopted, but anecdotal evidence suggests two reasons: it was thought to be dangerous for pregnant women to use a foot pedal; and small children do much of the water pumping and the force required on the pedal was too great for them, even standing on it with their full weight.

- Major programmes concerned with participatory agricultural development and the generation and adoption of appropriate technologies in the countries of eastern and southern Africa should take a leading role in creating a demand-led environment for improved production tools for women, and for creating the awareness and linkages necessary to help deliver them.
- International agencies should encourage governments to pursue tax and duty policies favourable to local manufacturers and distributors of tools and implements. They might also provide assistance to governments in formulating demand-oriented, private sector mechanization policies that take account of issues of gender in agricultural engineering.
- Rather than supporting the supply side of the market through providing subsidized tools and equipment – which distort local markets – donor agencies should consider supporting the demand side by providing credit to rural clients so they can purchase what they feel they need from the private sector and at an adequate and realistic market price.

### **Lack of Training in Animal Traction for Women**

Women's and men's groups in many countries stressed the need for more training in animal-traction for women. There seemed to be an implicit and lingering belief in the institutional/government sector that it was the men who needed such training, because animal traction is traditionally the men's preserve. Thus, the vast majority

"For a woman, having time left over is called 'laziness'."

Member of research team in Zimbabwe

of those who attend training courses or field days are men, whereas it is women who really need to be trained rather than having to be the self-taught practitioners they mainly are today.

"If a man comes home and finds his wife sitting resting, he will say 'Why aren't you doing something?'"

Member of research team in Zambia

### **Recommendation**

Training institutes (e.g., the Palabana Farm Power and Mechanization Centre, Zambia, and the Institute of Agricultural Engineering, Zimbabwe) and services organizing field demonstrations in animal traction should be pro-active in seeking women's involvement. They, and any international donors supporting them, could set parameters for the proportion of women to be included in their courses<sup>2</sup>.

### **Lack of Research on Women's Production Technology**

Although all interviewees said they believed that research into production tech-

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4. I. Carruthers and M. Rodriguez, eds. *Tools for Agriculture: A Buyer's guide to Appropriate Equipment for Smallholder Farmers*, Intermediate Technology Publications, London, 4th ed., provides descriptions of hundreds of tools and implements and the names and addresses of their manufacturers.