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IMPROVING LIVESTOCK PRODUCTION THROUGH EXTENSION: INFORMATION NEEDS, INSTITUTIONS AND OPPORTUNITIES

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Transmitting information on livestock production has rarely been a priority for centralised extension services in developing countries. National agricultural extension services are usually designed around the need to transmit information on annual crops, while livestock ministries and departments are dominated by vets and animal health concerns. Yet the potential for increasing livestock production through the provision of information is growing in many developing countries. This paper describes the context of that growth and looks at some of the ways in which livestock extension services and institutions differ. Future development in this field must build pragmatically on existing institutions, while attempting to respond flexibly and equitably to the needs of livestock producers.

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The research on which this paper was based was funded by ODA and the World Bank and assisted by the governments of India, Kenya and Burkina Faso. The authors are solely responsible for the views expressed. They can be contacted at: The Natural Resources Institute, The University of Greenwich, Central Avenue, Chatham Maritime, Kent ME4 4TB, UK. Internet: <http://www.nri.org>
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Policy conclusions

- Choices can be made from a range of options for improving livestock production advice, depending on circumstances:
 - links with agricultural extension services can be improved and crop/livestock information provision integrated at local level;
 - links with veterinary services can be strengthened by providing

production information from livestock health clinics or camps.

- In all cases, client-orientation needs to be stronger, with improved needs assessment and responsiveness to varied and changing farmer needs.

Changing livestock production systems and emerging constraints

The demand for information on livestock production ([see Box 1](#)) is growing, both in the sense of demands expressed by the producers themselves, and in the more general sense of a growing potential for increasing production through the delivery of information. Three linked factors are at play: processes of intensification and crop-livestock integration taking place especially in Africa; increased commercialisation of livestock production, particularly in peri-urban areas; and the gradual overcoming of animal disease as a constraint on production.

Intensification and integration

In large areas of Africa, livestock production by sedentary farmers is increasing, and old distinctions between farmers and pastoralists are breaking down. Population pressure and new markets created by urbanisation have caused an increase in land under cultivation, at the expense of grazing land. In some areas the adoption of animal traction has allowed greater areas to be cultivated per farmer, and also increased the need for fodder and grazing. Farmers have increased their livestock holdings as insurance against drought, and as a form of investment for the proceeds of cash cropping. Pastoralists have increasingly settled and started to cultivate, either as a result of impoverishment, or from a desire to establish use-rights to land before others do.

While these processes are enormously complex, the implications for extension are clear: *that great numbers of livestock in Africa are now kept by people without a traditional background in livestock production, or used for non-traditional purposes within rapidly changing production systems.*

This argument applies less to South and Southeast Asia, where well-integrated mixed farming systems are much more widespread, and dramatic changes in livestock ownership and distribution are not occurring. The changes in Asian livestock production that necessitate new information come from the new opportunities for dairy production and for fodder cultivation presented by irrigation and green revolution technologies.

Peri-urban livestock production

In nearly all developing countries, urban and peri-urban livestock raising is becoming increasingly important, as urban demand for animal products rises. In India, government and donor support has enormously stimulated dairy production, and marketing through cooperatives. The liberalisation of dairy marketing in Kenya has contributed to a similar trend. In the Sahel the devaluation of the CFA franc and the

ending of subsidised EU beef exports have stimulated a rapid expansion of urban fattening activities. Peri-urban production in all its forms will create demands for information, as it involves people new to livestock production, or new techniques (use of purchased fodder and concentrates), and because it involves a more systematic approach to processing and marketing.

The overcoming of health constraints

The concentration of government services on livestock health has been justified by the immediacy of animal diseases. The control of serious diseases such as rinderpest and Newcastle disease is now more effective, and treatment for many other conditions more easily accessible. As farmers gain confidence that diseases are under control, they are prepared to invest more in animal production. New constraints, particularly in genetic potential, and nutrition and husbandry, are now becoming limiting.

Extension methods and institutions

Crop-based and animal health-based extension

Despite its growing importance, livestock production extension is a field neglected both by policy-makers and by researchers. The importance of livestock to household welfare, fertility maintenance and production is still under-recognised in many developing countries. But livestock production extension faces the additional institutional problem of being marginal to both agricultural extension and animal health services.

Agricultural extension services have developed around crop production, and remain tied largely to the seasonal nature of cropping. Such a system is less useful for livestock production, with a longer time-scale and a lack of synchronisation of different animals and herds.

Livestock services and the ministries or departments that are responsible for them, are mainly run by vets, and focus on animal health issues: curative treatment of individual animals, preventive health, and health screening of animal products.

While many special projects, area-based or sub-sectoral, concentrate on livestock production issues and are run by animal productionists, few countries can afford a *separate* livestock production extension service. Livestock production has often held a marginal status in official circles, between two well-defined sectors with associated interest groups, sometimes neglected by both, sometimes shuffled between them ([see Box 2](#)).

Who manages extension?

Besides national or regional governments, extension services can be run by NGOs, by cooperatives, by universities or research institutes and by the commercial sector. In India, some extension is provided through the system of dairy cooperatives, which reaches from village-level primary societies to a national federation, and has 8 million members. Primary societies are successfully delivering information both on business management and on technical aspects of dairy production such as use of green fodder and concentrates.

Individual or group focus

Group approaches are preferable where joint action is needed, or where free-rider problems need to be resolved in cost-recovery programmes. On the other hand, needs for information will be increasingly individual, as livestock production intensifies and becomes more complex.

Information vs. information-with-inputs

Extension can either provide pure information or information linked to material inputs. The latter can appeal to the commercial sector involved in input sales or marketed offtake. It has also been used in more remote areas by NGOs to give users a stake in the information system and to promote farmer-to-farmer spread. Some NGO projects link extension to the provision, often on highly subsidised terms, of the animals themselves, sometimes for new sorts of livestock activity, such as sheep-fattening by women.

(see Box 3)

Cost recovery

Cost-recovery in "pure" extension is difficult because it is difficult to exclude non-payers from receiving agricultural information. There are also equity considerations against charging poor mixed farmers (and pastoralists) for extension, and environmental considerations where animal production messages are also conservation messages (as with improved conservation and use of manure). Cost-recovery can occur where the organisation transmitting information benefits from the sale of an input, or where it can levy a charge on marketed output. Specific management plans, e.g. for wealthier peri- urban and intensive livestock producers, are another opportunity for cost-recovery.

Participation

'Participatory' or 'farmer-led' extension have received much attention recently. While the need for farmer participation is real, and discussed further below, the strengths of formal systems should not be overlooked: access to a pool of research expertise, systematic procedures for turning research findings into extension messages, and the fact that the organisation persists as messages come and go. By contrast, some advisory services, often run by NGOs, are based on predispositions with poor technical grounding. An extreme example is the LUCODEB campaign in Burkina Faso, which attempted to enforce a ban on all extensive grazing.

Improving livestock production extension

In the present climate of retrenchment, governments are unlikely to start creating new institutions, or funding new services, to deliver extension on livestock production, so this growing need must be met by reforms of existing institutions and services ([Box 4](#)). In much of Africa this will mean the national crop-based extension systems. But in all settings, participatory assessment of producers' information needs is essential before institutional forms are decided upon.

There is a continuing role for the state in providing extension, especially to poorer producers, and in areas where there are significant positive externalities such as those linked with soil fertility maintenance and resource conservation. Cost-recovery from

poorer crop-livestock producers will be difficult to implement, but recovering costs from relatively wealthy producers (such as peri-urban fatteners or dairy farmers) may free public resources for extension to poorer producers.

Livestock extension within crop-based systems

At national level, relationships between agricultural extension services and livestock ministries or departments are inherently problematic. Livestock production is both a highly specialised sub-sector with a strong claim to separate structures, and sufficiently integrated with other forms of agricultural production to warrant inclusion in extension services. One part of the solution lies in decentralisation of all extension, and the integration of crop and livestock information delivery under local structures in response to local needs and conditions.

Most models for the integration of livestock into national extension systems will require cross-training of crop-specialist staff in livestock production and *vice versa*. The Kenyan Second National Extension Project has included two weeks of such training for front-line staff, but its availability has been patchy, and the course has been found too short and too classroom-based.

Low-cost participatory needs assessment methods are now well established and can assist in the understanding of priority needs. By contrast with crops, livestock extension has to cater for wide inter-household differences in husbandry systems and relative resource endowments, even within small areas. In the African context of resource constraints governing crop-livestock integration, the point at which it becomes worthwhile to invest labour in fodder cultivation, construction of haybarns, and manure pits will arrive at very different times for different households, even within one locality. Similarly, the new opportunities for commercialised livestock production will be taken up unevenly by households.

There are thus three linked but distinguishable imperatives for livestock production extension: participatory needs assessment, responsiveness to inter-household variation, and ability to address information needs as they arise, not as determined by a calendar. In meeting these needs, livestock production extension must learn from 'farmer-led extension' initiatives (see Scarborough, 1996), but public sector reform is likely to be essential. Reforms to national systems can be incremental participatory needs assessment methodologies can be introduced, extension calendars compiled at lower levels, and treated more flexibly, and extension workers empowered to present options rather than set messages. But such reforms will require continued resourcing.

They will also require improved research-extension linkages. Here, livestock research may suffer from specific problems of:

- compartmentalisation and distance from the departments responsible for the linkages with extension;
- and under-developed methodologies for adaptive research and particularly participatory on-farm research.

In Burkina Faso, for example, linkages between central livestock research and extension are mediated through a 'horizontal programme' in production systems

research, and in practice minimised. Seventeen adaptive research centres are managed at the regional level, but virtually no livestock research is carried out in any of them.

Production extension within animal health services

There are few examples of animal health services successfully delivering production information to mixed crop-livestock farmers, other than information linked specifically to material inputs such as drugs, vaccines or semen.

Disease prevention through vaccination campaigns, reduction of mortality and morbidity losses, and meat hygiene have remained priorities. This is understandable since human health is an important consideration, diseases cause visible losses and solutions are available.

Further, the working patterns of animal health staff tend not be conducive to regular mass extension: animal health services are usually focused on district clinics to which farmers can bring animals, or on call-outs to individual animals. Vets and paravets are unlikely to have training in communication skills. Their professional reward systems usually revolve around concrete targets of animals treated/vaccinated or drugs supplied and are not conducive to the provision of 'pure' information.

Animal health services, then, have not yet fulfilled their potential as vehicles for mass extension to mixed crop-livestock farmers. A case can be made for information dissemination to widely scattered producers through animal health and fertility camps organised by animal health services, as in India. A case can also be made for complementing animal health services with a parallel livestock extension service, possibly operating from the animal health clinics and hospitals, but staffed separately. Paraveterinary projects, many run by NGOs, have a good record with pastoralists around the world (see Butcher, 1994), including to some extent with production information.

Government animal health staff are playing an increasing role in extension to more specialised livestock producers the peri-urban or the wealthier in rural areas. Pressures are increasing to make this advice available for a fee or to hand it over to the private sector.

Production extension via specialist services

The independent extension of livestock production information, separate from both crop extension and animal health, has largely occurred in special donor-funded projects, as a subsidiary activity of universities and research institutes, and in NGOs.

These services have much in common: they are open to participatory forms of needs assessment and technology development, and often use innovative media to transmit extension messages. They may work on a commodity basis with the whole livestock production cycle, and provide credit, material inputs and marketing opportunities, rather than information on its own. Some donor projects have dedicated research components, and both donor projects and NGOs can network information effectively among themselves, rather than relying on normal research-extension linkages.

On the other hand, donor and NGO projects often have high levels of resourcing, with hidden subsidies. They are also likely to work in favourable target areas, and may

apply only to a restricted sub-set of farmers. These conditions can lead to very high adoption rates, but a low level of institutional sustainability and replicability. Their role is likely to be either:

- catalytic in that they serve to test interventions and approaches which may then be transferred in less intensive forms to national services; or
- time-bound, in that in combination with spontaneous diffusion processes, they can successfully spread a specific innovation on a one-off basis.

Conclusions

The writing of this paper was stimulated by the increasing potential in many developing countries for improving livestock production through the provision of extension on production techniques. But livestock extension has been marginalised by major interest groups (crop-based extension and animal health services) and by a lack of a clear understanding of livestock farmers' needs. Crop production needs and animal health problems are more easily diagnosed and addressed than livestock production needs. Livestock farmers are frequently dispersed and are usually non-uniform in their needs (even within a particular community).

The sorts of reforms and modifications necessary to introduce some livestock production messages successfully into crop-based extension services are now clearer. Many of these reforms are needed anyway by those services if they are to work effectively with poor farmers. Other information may be handled by animal health services, given certain reforms, particularly in professional reward systems. The choice of institutional context for livestock production extension cannot be made in the abstract, but has to be based on the nature of producers' information needs, and on available resources.

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ISSN: 1356-9228
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