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**M**ost of the world's poor people work on family farms. Where mass poverty persists, increasing employment and incomes on family farms is the only effective way to start reducing it.

On family farms, most labour and management comes from the family that controls the farm. Research from the Poverty Research Unit at the University of Sussex, UK, examines how growth on these farms can reduce mass poverty in developing countries. In many places, it has already been critical to poverty reduction – for example in China after egalitarian distribution of collective lands to family farms. Successful growth increases labour demand and productivity (increasing output from fewer inputs).

Farm growth must meet three conditions to reduce poverty. Appropriate

technology to create employment should be made available to farmers. Land and water should be distributed sufficiently equally for poor people to benefit. Finally, policies should create market incentives for family farms.

The research shows:

- Family farms retain competitive advantages over larger farms where labour is abundant relative to 'capital' inputs (such as farm machinery).
- Between 1960 and 2005 small farms raised their share of cropland in Asia and Africa. Modern marketing (supermarkets, grades and standards) can create problems for them, but there are clear examples of successful solutions.
- Improved output of staples – cereals, root crops – from small farms is critical, so poor people can afford more staples.
- New, employment-intensive farm technology from formal science institutions is almost always needed, but must reflect poor farmers' priorities.
- The need for sufficiently equal and widespread access to land and water has not been met in much of eastern and southern Africa and Latin America.
- Expanding agriculture into marginal lands in developing countries is not an alternative to increasing on-farm productivity; environmental costs are too high.

South and South-East Asia, and Africa have falling ratios of dependent populations (the old and the young) to working populations.

This 'dependency ratio' will start to increase again in approximately 30 years, offering a one-off chance to reduce poverty – if these extra workers can be productively employed. In East Asia, where this worked, technology-led small-farm growth was the main source of affordable employment.

Stimulating growth in family farm productivity poses challenges for policymakers:

- The private sector plays an increasing role in agricultural research. Policies must create incentives to develop technologies reflecting poor farmers' priorities.
- Crop scientists should concentrate on technologies that raise yields and 'crop per drop' faster than they raise labour productivity, so that farm employment rises.
- Policies must address unequal access to land and water, sometimes including direct land reform.
- The spread of irrigation in sub-Saharan Africa is essential. Rapid crop productivity growth normally requires fertilisers. It seldom benefits farmers to use these unless water is fairly reliable.
- Policy reforms must reduce farm subsidies and tariffs and eliminate quotas in developed countries.
- Institutions that connect poor people with markets and information must improve. These include small bulking-up and processing centres for fruit and vegetables, mobile phone rentals (and internet cafes) so farmers can learn about recent prices and more importantly agricultural extension. All these will increase the chances of small farmers benefiting from globalisation.

**In many places growth on family farms has been critical for reducing poverty**

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[www.ifpri.org/2020/dp/vp40.asp](http://www.ifpri.org/2020/dp/vp40.asp)



## Agricultural extension: prioritising farmers' needs

**A**gricultural extension services provide farmers with important information, such as patterns in crop prices, new seed varieties and training in new technologies. Uganda is replacing its public system with a Private Service Provider Advisory (PSPA) system. Will this be more effective in meeting farmers' needs?

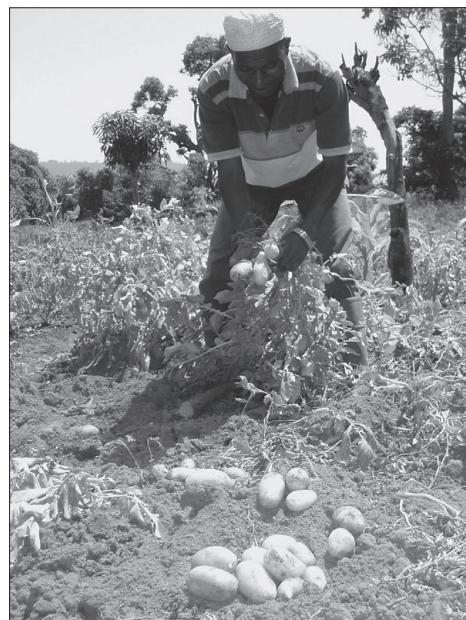
Agricultural extension services are under constant pressure: many experts demand changes to traditional public extension systems, which are seen as outdated, inefficient and unable to cope with modern agriculture.

To improve its extension services, the Ugandan government created the National Agricultural Advisory Services (NAADS) in 2001 to help privatise the public extension system. The public system is gradually being replaced by the PSPA coordinated by NAADS. These service providers operate on contractual bases with farmers' organisations. They may be non-governmental organisations (NGOs), private individuals or firms offering advice or training on agricultural production.

Research from the Agricultural Research and Extension Network, UK, assesses Uganda's new agricultural extension service. The researchers collected data on how smallholder farmers in Mukono District, Uganda, identify and prioritise their needs. The research observed meetings to discuss extension services and surveyed 120 farmers for their perceptions of the PSPA system.

The research shows:

- The PSPA system assumes a high degree of consensus amongst farmers and overlooks the specific needs of minority groups.
- Some of the criteria used for selecting and prioritising services tend to be quite



## Maize farming in Kenya

New technologies and farming methods during the 1960s and 1970s saw large improvements in crop production in Kenya, but this has not been sustained. What caused this decline in maize production?

The growth in maize production was due to an increase in land used for farming and government and donor support for new methods of crop production (including improved land preparation and weed control techniques, and the use of better seeds and fertilisers).

More recently, crop yields have decreased, mainly due to inadequate policies and weak agricultural institutions: for example, government involvement and expenditure on agriculture has reduced. Maize is still cheaper to produce than buy, but production is far below national consumption, meaning Kenya imports maize in most years. Despite this, government purchasing of Kenyan maize is low: most farmers sell to private markets.

The research shows:

- Poor government and private research limits the development of technologies and creates weak links between researchers and farmers.
- Most of Kenya lacks adequate markets for fertilisers, seeds, livestock feeds, artificial insemination and farming chemicals.
- Marketing and credit support for farmers is either lacking or poorly provided; many farmers achieve little of the potential crop yields increases from new technologies.
- Kenya's infrastructure, particularly roads and communication networks, are poor and hinder agricultural growth.

Despite these problems, agriculture offers the best prospect for economic growth. If the gap between maize production and consumption can be closed, hunger will disappear for most households. Policymakers must:

- increase the use of improved seeds, fertilisers and appropriate farming methods
- allocate more funds for the agricultural sector within the national budget
- improve the storage of crops by investing in both on-farm and off-farm storage facilities
- address the lack of incentives for farming communities by improving access to credit, strengthening agricultural institutions and developing policies to reduce market risks
- develop new technologies to reduce soil erosion and conserve water and soils.

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'Why the Early Promise for Rapid Increases in Maize Productivity in Kenya was not Sustained: Lessons for Sustainable Investment in Agriculture', by Willis Oluoch-Kosura and Joseph T. Karugia, pages 181-196 in *The African Food Crisis*, CABI Publishing: Wallingford, edited by G. Djurfeldt, H. Holmen, M. Jirstrom and R. Larsson, 2005

academic, with no practical value for farmers.

- The process of selecting and providing extension services is often inflexible and not controlled by farmers. For example, the government determines the numbers of enterprises to be selected, the criteria for selecting these and the farmers who can participate.

Smallholder farmers need strong, independent farmers' organisations to represent their interests effectively and to have some influence on extension activities. However, current efforts to establish such organisations focus on fulfilling government mandates. The government forms groups simply to provide their agricultural advisory services, not to represent the needs or concerns of farmers. The Uganda National Farmers' Federation is one organisation that represents farmers well. This could provide a useful model for developing further farmers organisations in the country.

**Farmer Fernando Rubia of Burgos, Ilocos Sur, Philippines uses the traditional method in ploughing rice fields to reduce expenses. A carabao and a plough are all he needs to prepare the land.**  
© 2005 Freddie G. Lazaro, Courtesy of Photoshare

The research suggests:

- Multipurpose farmer groups are more effective at representing farmers than those that focus only on extension services. These should be developed instead of government-controlled groups.
- The PSPA system needs more flexibility to support a broad range of farmers. One improvement would be to decentralise extension programmes to small farmer group level.
- The selection criteria for services need simplifying to enable farmers to participate, with more emphasis on farmers' own criteria.

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[www.odi.org.uk/agren/papers/agrenpaper\\_147.pdf](http://www.odi.org.uk/agren/papers/agrenpaper_147.pdf)

## Debating biotechnology in southern Africa

**In 2002 and 2003, there was a serious food crisis in southern Africa. In response, overseas food aid was made available. However, some of the donated grain was genetically modified (GM).**

Most countries in the region had no policy on biotechnology or risk assessment systems for GM crops, leading to fierce debates about whether to take GM imports. Effective policymaking on this issue is an urgent challenge.

Research from the International Food Policy Research Institute, USA, and the Food, Agriculture and Natural Resources Policy Analysis Network, Zimbabwe, looks at the biotechnology policy process in southern Africa, which emerged in response to the GM food aid crisis. The research considers people's views from across the region, representing different sides of the debate, and examines the success and effectiveness of the region's discussions about this issue.

The research shows:

- It is difficult to reach consensus on the role of biotechnology in agricultural and overall development. The aim of policy discussions should be to agree

on processes for moving towards a consensus.

- All relevant parties should be involved, from all sides of the debate.
- There must be accurate scientific and technical information available for discussion.
- Trust between different groups is essential, including fair criteria for evaluating the effectiveness of policy processes.

Complexity and uncertainty are key elements in biotechnology debates across the world. Policies from other sectors, including agriculture, trade, consumer preference and environmental policies, further complicate these debates. Countries need to consider the role of intellectual property rights, bio-safety issues and risk assessment systems (processes for judging the safety and desirability of different GM crops). Effective dialogues should involve experts with different perspectives from each of these areas.

The research makes several policy recommendations:

- There should be dialogues between and within countries. For these to take place, policymakers must have information about different technologies, products and the impacts of different policy approaches used in each country.
- Many countries in the region do not

**Biotechnology debates are complex: countries must consider policies from agricultural, trade and environmental sectors**

have any biosafety guidelines. These are critical if countries are to regulate and make scientific assessments about biotechnology. Regional biosafety policies may also be important.

- There is a need to decide on what type of intellectual property policy is appropriate in relation to development objectives.

This includes the degree of conformity with the World Trade Organization (WTO) Trade Related Aspects of Intellectual Property Rights agreement.

- Trade policies are important. These include trade in GM crops in the region and potential impacts of different GM policies on agricultural exports to overseas markets (some of which may be hostile to GM imports).
- Policymakers in southern Africa need to coordinate policies on biotechnology across the region to be more effective in international negotiations, such as WTO discussions.

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*Dialogues: the Shaping of Biotechnology in Africa*, International Food Policy Research Institute and Food, Agriculture and Natural Resources Policy Analysis Network, Briefing, IFPRI: Washington, by Steven Were Omamo and Klaus von Grebmer, 2005  
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## Are fertiliser subsidies right for Africa?

**Inorganic fertilisers are responsible for much of the growth in the world's agricultural production. In Africa, however, fertiliser consumption is very low – the entire continent uses only two to three percent of global supply. What can be done to encourage fertiliser use?**

Research from Michigan State University, USA, and the International Fertilizer Development Centre, USA, discusses patterns of fertiliser use in Africa and the impact of fertiliser subsidies. African soils suffer from declining fertility and increasing degradation and many development researchers agree that increasing fertiliser use would be beneficial. Inorganic fertilisers will be vital for achieving food security and overcoming low agricultural productivity in the region.

After twenty years of liberalising policy reforms, the role of African governments in marketing and distributing fertilisers has been reduced. Private sector fertiliser development is fragmented and inconsistent and limited access to fertilisers is a problem for smallholder farmers in remote rural areas. There is a growing

demand for policies supporting subsidies to increase the availability of fertilisers in Africa.

However, experience shows fertiliser subsidy programmes are costly and difficult to sustain in Africa. Governments, non-governmental organisations (NGOs) and donors have tried a range of different approaches. Although there have been some successes, there have been consistent problems.

The research shows:

- Improving the supply of fertiliser to farmers is difficult when infrastructure, transport and credit are all limited.
- Subsidy programmes are often inefficient or poorly organised. Late delivery of fertilisers significantly reduces their potential to increase crop yields.
- Subsidies sometimes encourage use of

**Experience shows that fertiliser subsidies are costly and difficult to sustain in Africa**

fertiliser in the wrong places, for example where the added value of the crop is less than the cost of producing and

transporting it to consumers.

- It is difficult to target fertiliser subsidies at the most needy groups. Wealthier farmers who have access to cash incomes often receive the most benefits.
- Subsidy programmes reduce the likelihood of an effective private sector marketing system. Subsidies provided by state-run programs take business away from private fertiliser traders.
- Political interference and manipulation of subsidy schemes is common. Several alternatives may be more effective

than fertiliser subsidies. Indirect measures can establish efficient, competitive markets for financial services, agricultural inputs and products. The research recommends:

- Support for agricultural research that identifies fertiliser-responsive crop varieties and transmits information about fertilisers to farmers.
- Training to help farmers understand how different fertiliser combinations and technologies can increase yields and income.
- Stronger legal processes for the enforcement of contracts for agricultural credit.
- Promoting cost-effective partnerships between all people and organisations involved in the process. Researchers, farmers, NGOs, extensionists and private sector companies must work together more closely to develop fertiliser markets.
- Different cropping patterns and farming systems require different amounts of fertiliser. Different strategies to provide fertiliser are needed for high value crops, fertiliser responsive crops and low value crops.

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*Alternative Approaches for Promoting Fertiliser Use in Africa, with Particular Reference to the Role of Fertiliser Subsidies*, MSU: East Lansing, by Eric Crawford, T.S. Jayne with Valerie Kelly, 2005  
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## Balancing indigenous crops and market demands in the Andes

**Severe weather conditions, such as droughts and floods, regularly damage crops in the highlands of the Andes. To reduce their vulnerability to risks, indigenous farmers plant many varieties of staple crops, such as potatoes and quinoa. However, new market pressures and preferences threaten this diversity and, by consequence, food security and incomes.**

Communities traditionally cultivate between 70 and 100 varieties of potato, each susceptible to different pests or weather conditions. In Andean countries, though, the demand for indigenous foods like quinoa and local potatoes has been falling. There has been discrimination against indigenous foods, and indigenous people, since colonialism in the Andes. Recently, factors such as population growth, decreasing available farmland and increasing demands for wheat have added to the pressure on traditional crops. The authors studied changing cropping patterns in Bolivia, Peru and Ecuador and explored ways to retain diversity while helping farmers to sell their crops in changing markets.

Quinoa, a grain that has been cultivated in the Andes for over 7,000 years is important for food security and nutrition in the region. It has a very high nutritional value and can survive in harsh conditions where few other crops grow. Processing quinoa is labour intensive, though, and labour is often short at harvest time when many people leave home to seek paid employment. Imported wheat products are subsidised and are, therefore, often cheaper than quinoa. Imported potato varieties are also replacing local varieties, to meet requirements for conformity from fast food chains and large retailers.

**Changing to monocultures means that farmers risk losing their income and food source in the event of crop destruction**

Changing to monocultures, particularly with less nutritious crops, means that farmers risk losing both their income and food source in the event of crop destruction. This is a damaging trend for both rural economies and food security, in both rural areas and indeed countries.

There has been some progress in balancing crop diversity and market needs:

- Practitioners are developing markets for indigenous products by helping farmers to understand market needs and buyers to appreciate local products.
- Farmers receive assistance to make local potato products more attractive to consumers and to dry and package them for year-round sale to supermarkets.
- To produce good quality quinoa at marketable prices requires processing technology. A producers association in Bolivia has constructed a processing plant. This collects the produce from several

small farmers, reducing their costs and giving buyers consistent quantity and quality.

- The government in Peru has encouraged quinoa production by buying it for school meals and food programme canteens. This has increased grain production and increased the nutritional value of meals. Slowly, people are beginning to appreciate indigenous crops again. To encourage their continued and increased production needs further policy interventions:

- Market forces alone will not preserve crop diversity; there must be policies that favour and protect poor people.

The World Trade Organisation should give more support to smallholder farmers to encourage their businesses.

- Donors should fund extension services that help develop skills in business planning, marketing and negotiation. This will help small farmers to access and supply markets for indigenous foods.
- Governments can continue to fund and promote indigenous crops by buying them for food programmes.

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'Crop diversity and livelihood security in the Andes', *Development in Practice*, 15:2, by J. Hellin and S. Higman, 2005

## useful websites

Agricultural Research and Extension Network  
**www.odi.org.uk/agren**

Agriwatch  
**www.agriwatch.com**

Consultative Group on International Agricultural Research  
**www.cgiar.org**

Ecoagriculture Partners  
**www.ecoagriculturepartners.org**

Future Agricultures  
**www.future-agricultures.org**

Future Harvest  
**www.futureharvest.org**

Genetic Resources Action International  
**www.grain.org**

Global Forum on Agricultural Research  
**www.egfar.org**

International Fertilizer Development Center  
**www.ifdc.org**

International Food Policy Research Institute  
**www.ifpri.org**

Kenya Agricultural Research Institute  
**www.kari.org**

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