

‘Without artificial fertilizer you just perpetuate the problem’

AGRICULTURAL DEVELOPMENT IN AFRICA: WHICH FACTORS COUNT?

The Wageningen alumnus Henk Breman and WUR researcher Tom Schut found out which African countries had succeeded in boosting their agricultural production over the past 50 years, and which factors lay behind that.

The population of many African countries is growing fast, while food production to feed so many mouths is stagnating. But there are exceptions. ‘Look at Ethiopia and Rwanda. Food production per hectare is increasing fast in those countries, both of which have well-organized governments with a long-term strategy. Investments in agriculture there pay off,’ says Tom Schut, a researcher in the Plant Production Systems chair group. Together with Henk Breman, a Wageningen alumnus who worked on development projects in Africa for years, and the Israeli researcher No’am Seligman, Schut researched agricultural development since 1960 in 54 African countries.

Schut concludes that a combination of factors is always the key to good food production. One of the most important factors is good infrastructure – roads and railways for transporting agricultural products to markets. ‘Building roads causes a drop in the cost of food. And that is badly needed, as food is expensive in Africa – up to 40 per cent more expensive than elsewhere in the world where incomes are comparable.’

Why is food so expensive in Africa?

‘The productivity of both land and labour is low: you need many hands in the fields to get a small yield, and there are a lot of mouths to feed just to get a truck-



▲ Building roads causes a drop in the cost of food.

load of grain to the city. Many African countries have mostly small farmers with less than a hectare of land. You can’t feed the urban population with small farmers alone. Studies indicate that a

‘Good farming practice is essential’

small proportion of the farmers – about 20 per cent – grow 80 per cent of the food, and therefore need to intensify. That means the increase in production you need has to come from a small part of the agricultural land. Otherwise, African countries go on importing food.’

You say that Africa suffers from low yields due to poor soils.

‘Many of Africa’s soils are naturally poor. Once those soils are tilled, the amount of food they produce goes down even more after a few years. So to feed the population, the politicians opt to import food, as a result of which there is no long-term agricultural development. That is roughly the process that many African countries have been through since 1960. And it is not an easy problem to solve.’

Your proposal is: provide artificial fertilizer.

‘You won’t increase the productivity of African agriculture without artificial fertilizer because there is no alternative source of phosphate and potassium. There have been lots of Conservation Agriculture projects in Africa, in which soils are fertilized with crop waste and animal manure, but that is

just perpetuating the problem. External nutrients are indispensable for increasing harvests and biomass, and thus improving the soil. You need organic manure and crop residues as well, just as you need good seed and pest control, but the kick start for this development has to come from artificial fertilizer.’

How quickly does that generate development?

‘We have just had a PhD study of grain production in Western Kenya, where the farmers get yields of one and a half tons per hectare. With a combination of nitrogen, potassium and phosphate, production goes up to five tons per hectare. If only two of these three nutrients are used, production drops again after a few years, and a shortage arises. Good farming practice is essential when using this fertilizer, meaning good seed, disease control and weeding. We tested it on 23 farmers’ fields and it worked everywhere.’ **AS**

ROLE OF TECHNOLOGY INTERESTING TOO

PhD candidate Diana Kos concluded recently that small farmers in Africa can – under certain conditions – benefit from new technology such as drones, sensors and mobile phones as they get more opportunities to access new markets and thereby increase their income. Go to resource-online.nl for an interview with Kos about technology in food supply chains.