

Return to the native

The Cuban experience paves the way for our regular column on organic farming, introduced by Sreeram Chellappa

To ensure self-sufficiency in agricultural production the Green Revolution introduced high yielding varieties of various crops and followed intensive cultivation practices with the use of fertilizers, pesticides and other inputs. The intensive use of artificial inputs not only polluted soil, water and the environment; it also had a direct impact on human health. Extensive researches have proved that continuous use of inorganic fertilizers containing NPK (Nitrogen, phosphate and potassium) in large quantities paved the way for deterioration of soil health and in turn resulted in ill effects on plants, human beings and cattle. Excessive application of chemical fertilizers affects physical properties of soil such as infiltration, soil aeration, soil structure and bulk density. It also leads to malnutrition as these inputs bring about excessive digestion of carbohydrates and proteins. Pesticides contaminate air while being sprayed or through evaporation from soil or water. The entry of pesticides in water mainly occurs due to surface run off, sediment transport from treated soil, industrial wastes and direct application of pesticides to control aquatic pests. Soil receives pesticides when they are directly applied, besides runoff from plants, rains and dumping of empty containers of pesticides. Consistent use of pesticide has led to development of resistance among pests and vectors and results in an adverse effect on non-target organisms. Continuous use of pesticides also has an adverse effect on beneficial organisms like honeybees, and

pollinators. Chlorinated hydrocarbons, a group of pesticides, can accumulate in the adipose tissues of human beings and given that it is very difficult to ascertain the extent of safety of residue in human beings, it can prove to be dangerous.

Organic farming on the other hand is a holistic process as it is blessed with characteristics that protect the long-term fertility of soils by maintaining the composition of natural elements. It fosters natural biological activity in soil, provides crop nutrients by the action of soil microorganisms and assures nitrogen self-sufficiency through the use of legumes and biological nitrogen fixation. Organic cultivation also facilitates effective recycling of crop residues and livestock wastes. It curtails weed, disease and pest control through crop rotations and organic manuring. It ensures extensive livestock management and pays full regard to their behavioral needs with respect to nutrition, housing, health, breeding and rearing. Organic farming on account of only utilising natural inputs has positive impact on the wider environment and the conservation of wildlife and natural habitats.

THE CUBAN EXPERIENCE

One of the biggest problems faced by proponents of organic agriculture is the firmly established agro industry, which claims that organic, small-scale, sustainable methods of food production are simply not economically viable.

Cuba is proving that perception to be a myth. It

The Met Department becomes the target of ridicule every time the Southwest monsoon fails to tread the defined path. But this year the Met Department is all prepared. It has introduced a new Long Range Forecast Model for the Southwest monsoon rainfall for the country as a whole. Based upon this newly adopted 8-Parameter Power Regression Model, the Indian Meteorological Department's long range forecast for the 2003 monsoons (June-September) is that the rainfall for the country as a whole is likely to be 96 per cent of the Long Period Average (LPA) with a model error of ± 5 per cent.

SPECIFICATIONS

- 21 per cent probability of drought (rainfall less than 90 per cent of LPA)
- 39 per cent probability of below normal rainfall (90 to 97 per cent of LPA)
- 14 per cent probability of near normal rainfall (98 to 102 per cent of LPA)
- 23 per cent probability of above normal rainfall (103 to 110 per cent of LPA)
- 3 per cent probability of excess rainfall (more than 110 per cent of LPA)

population derives sustenance from agriculture. In case of a less than normal monsoon this year, last year's adverse effect on agriculture would be magnified. The 2002 drought coupled with the absence of pre-monsoons this year has already augured doom for the coffee plantations, especially Arabica and Robusta.

Yet the overall outlook has been largely positive with the Centre claiming that the week-long delayed monsoon would not adversely affect crop production and Indian exports. "The exports of wheat and rice will continue as the country has enough footstock, and there will be no change in the grain trade policy," announced Minister for Food, Sharad Yadav. Adding to this the Minister for Agriculture, Rajnath Singh said that a week is too small a period to have a large impact on the overall output and export scenario and there is no cause to worry. Even the Met department seems to agree with Mr Singh with its Deputy Director General proclaiming that "the monsoon's arrival on the southern coast on June 8 against the expected June 1 is not likely to affect its overall performance."

But if the pre-monsoon showers are anything to go by, the figures are unimpressive. In terms of the meteorological sub-divisions, just 14 out of 36 recorded normal or excess rains – that is not only lower than the 21 divisions last year, but the lowest figure for at least the last six years.

Qualifying this data are reports from the Agriculture Ministry. The area sown so far under autumn (early kharif) rice, jute and cotton is marginally lower this year compared to the corresponding period last year. Reported area sown under autumn rice is 7.5 lakh hectares compared to

7.9 lakh hectares last year, while that under jute is 7.1 lakh hectares (7.2 last year). Sowing of cotton is almost complete in the northern states, which account for about 18 per cent of the normal area under cotton. The area coverage has, however, fallen from 4 to 3.6 lakh hectares. Sowing of sugarcane is progressing satisfactorily with the area coverage at 35.3 lakh hectares so far against 34.9 lakh hectares in the year-ago period.

ANOTHER POOR MONSOON THIS YEAR IS ALSO PROBABLE GIVEN ITS DELAYED ONSET IN KERALA. DEFICIENT RAINFALL IMPACTS ON THE AGRICULTURE PRODUCTION AND LOWER INCOME, IN TURN, TRANSLATES INTO A LOW DEMAND FOR OTHER COMMODITIES

But hopes are still high. The first showers that hit Kerala had a definite impact on the stock market. The assurances of the Government and predictions of the Met Department that "for the country as a whole, rainfall during the south-west monsoon is likely to be 96 per cent of the long period average," have definitely left spirits soaring. Though there is still a lot of scepticism in the agricultural community and the history of the Met department's predictions speaks volumes about its inconsistency, the farm sector is still optimistic that the rain gods will be benevolent.

Considering the vitality of rainwater for agriculturists, we here at TAJ send up a silent prayer on their behalf too.



is the first nation to attempt to convert its entire system of food production to sustainable organic methods. This conversion does not mean a simple substitution of organic inputs for chemical ones; Cuba has changed the very structure of its agricultural system. The formerly monolithic state farms have been slowly parceled out to cooperatives and individual farmers, thereby increasing their efficiency and allowing the farmers greater food security. In the cities, unused land has been made available to its citizens for cultivation, creating a vast system of organic urban gardens. More than 8,000 gardens in Havana alone produce 541,000 tonnes of food in 1998 and account for as much as 30 per cent of the nutritional needs of certain areas.

Cuba has become a leader in the world of organic agriculture. Its research and development and its extension agencies have advanced organic methods in the urban and rural sectors. When Cuba's trade relations with the Soviet bloc crumbled in late 1989 and 1990, the economic situation turned desperate. Imports of wheat and other grains for human consumption dropped by more than 50 per cent, while other foodstuffs declined even more. Cuban agriculture was faced with a drop of more than 80 per cent in the availability of fertilisers and pesticides, and more than 50 per cent in fuel and other energy sources produced by petroleum. Suddenly, a country with an agricultural sector technologically similar to California's found itself almost without chemical inputs, with sharply reduced access to fuel and irrigation, and with a collapse in food imports.

ALTERNATIVE TECHNOLOGIES

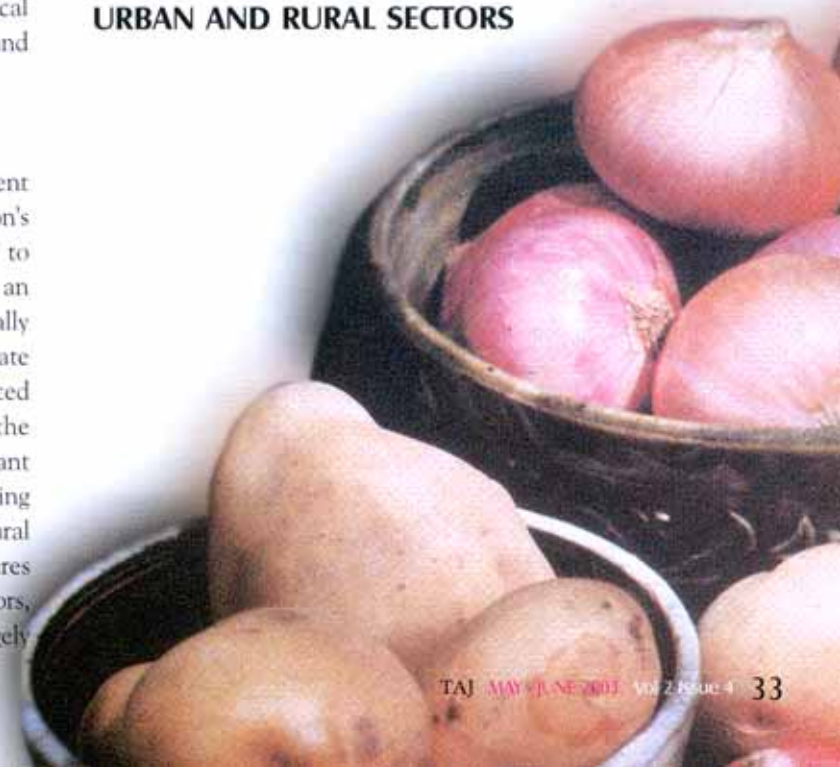
In response to this crisis the Cuban Government launched a national effort to convert the nation's agricultural sector from high input agriculture to low input, self-reliant farming practices on an unprecedented scale. Because of the drastically reduced availability of chemical inputs, the state hurried to replace them with locally produced biological substitutes. This ushered in the development of biopesticides, naturally resistant plant varieties, crop rotations and cover cropping to suppress weeds. Earthworms, compost, natural rock phosphate and animal and green manures replaced synthetic fertilisers. In place of tractors, for which fuel, tires, and spare parts were largely

unavailable, there was a sweeping return to animal traction. The drop-off of yields in the state sector industrial-style farms that had averaged thousands of hectares was resistant to recovery, with production seriously stagnating well below pre-crisis levels for exports crops. Yet small farmers (20 percent of farmed land) responded rapidly by quickly boosting production above previous levels.

THE STATE FARMS

By mid-1993, imported inputs were largely unavailable, but nevertheless the small farmer sector had effectively adapted to low input production. The state sector, on the other hand, was proving itself to be an ineffective "white elephant" in the new historical conjuncture, incapable of adjusting. In September 1993 Cuba began radically reorganising its production in order to create the small-scale management units that are essential for effective organic-style farming. The process of linking people with the land thus culminated in 1993, when the Cuban government issued a decree terminating the existence of state farms, turning them into Basic Units of

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Cooperative Production (UBPCs), a form of worker-owned enterprise or cooperative. Now a majority of all farmland that was once held by the state, including sugarcane plantations, has been turned over to the workers.


FOOD SHORTAGE OVERCOME

By mid-1995 the food shortage had been overcome, and the vast majority of the population no longer faced drastic reductions of their basic food supply. In the 1996-97 growing season Cuba recorded its highest-ever production levels for ten of the thirteen basic food items in the Cuban diet. The production increase came primarily from small farms, and in the case of eggs and pork, from booming backyard also proved to be extremely important to the Cuban food supply. The earlier food shortages and the rise in food prices suddenly turned urban agriculture into a very profitable activity for Cubans, and once the government threw its full support behind a nascent urban gardening movement, it exploded to near epic proportions. Formerly vacant lots and backyards in all Cuban cities now sport food crops and farm animals, and fresh produce is sold from private stands throughout urban areas at prices substantially below those prevailing in the farmers markets. There can be no doubt that urban farming, relying almost exclusively on organic

techniques, has played a key role in assuring the food security of Cuban families over the past two to three years.

AN ALTERNATIVE PARADIGM?

To what extent can we see the outlines of an alternative food system paradigm in this Cuban experience? Contemporary Cuba turned conventional wisdom completely on its head. We are told that small countries cannot feed themselves, that they need imports to cover the deficiency of their local agriculture. Yet Cuba has taken enormous strides toward self-reliance since it lost its key trade relations. We hear that a country can't feed its people without synthetic farm chemicals, yet Cuba is virtually doing so. We are told that we need the efficiency of large-scale corporate or state farms in order to produce enough food, yet we find small farmers and gardeners in the vanguard of Cuba's recovering from a food crisis. In fact, in the absence of subsidised machines and imported chemicals, small farms are more efficient than very large production units. We hear time and again that international food aid is the answer to food shortages-yet Cuba has found an alternative in local production. Abstracting from that experience, the elements of an alternative paradigm might therefore be:

- ◆ Agro ecological technology instead of chemicals: Cuba has used intercropping, locally produced biopesticides, compost, and other alternatives to synthetic pesticides and fertilizers
- ◆ Fair prices for farmers: Cuban farmers stepped up production in response to higher crop prices. Farmers everywhere lack incentive to produce when prices are kept artificially low, as they often are. Yet when given an incentive, they produce, regardless of the conditions under which that production must take place
- ◆ Redistribution of land: The Cuban example can help us to understand that modest-sized family farms and cooperatives that use reasonably sized equipment can follow ecologically sound practices and have increased labor productivity
- ◆ Greater emphasis on local production: People should not have to depend on the vagaries of prices in the world economy, long distance transportation, and super power goodwill. 

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