NOVEMBER 2011

The Statesman, Thursday, November3, 2011

Nature and Agriculture – The increasing importance of organic farming

Organic food without the use of chemical fertilizers and pesticides is being promoted in the USA, Canada, Austria, Italy, Poland and Cuba. These are processed without artificial preservatives. The products are more nutritious and resistant to diseases. Organic fruit and vegetables contain around 40 per cent more antioxidants than those produced with fertilizers. The products are required to be certified by an accredited agency.

The Green Revolution of the 1960s needed high inputs in respect of quality seeds, chemical fertilizers, pesticides, irrigation, farm mechanization, etc. As a result, the problems of that agricultural phenomenon are now emerging. It can have an adverse effect on agricultural development. There have been both qualitative and quantitative degradation of land, waste and bioresources, fertile lands have become uncultivable due to water logging and salinity, and the post-harvest losses have been substantial.

Organic farming is now being promoted in India. It plans to cover a range of high-value crops, including spices, fruit, vegetables, milk, poultry, etc. an estimated 3.8 million hectares are now under organic farming in different states. These products fetch 25-30 per cent higher value than non-organic products.

Earlier, India had earned foreign exchange worth $78 million in a year from export of organic products to European countries, the USA, Japan, Australia and Middle East.

Organic farming does not cause environmental and social damage it maintains soil fertility, reduces tilling, suppresses weed growth, promotes humus formation and enhances the water-holding capacity of the soil. It is less costly for sustainable agriculture. This may reduce rural poverty and distress among the poor and marginal farmers, and may improve their income and livelihood.

Natural farming is a boon to the hapless farmers in Punjab. No institutional credit is required and hired labour is reduced. Home-made preparations such as a mixture of cow dung, cow urine, water, lime and soil protects crops against harmful soil-borne and seed-borne pathogens. Kerala is converting 20 per cent of the cultivable land to organic farming. Farmers are being encouraged to use bio-fertilizers and bio-pesticides. Six thousand hectares of arable land in Sikkim are under organic farming. Farmers have succeeded in growing maize, paddy, ginger, cardamom and turmeric.

The use of bio-fertilizers for nitrogen is being encouraged these days. Agriculture today consumes high inputs of nitrogen. On an average, 100 kg of nitrogen fertilizers are consumed per hectare in the country. This requires a huge investment. The present needs of nitrogen are largely met from synthetic nitrogen fertilizers. A part of the requirement is met by imports. Their demand is expected to increase by 25 per cent in the near future.

These fertilizers are quite expensive because of high production cost. Their high inputs have considerably increased the cost of farm production. Production consumes a substantial volume of energy. Given the energy constraints, attempts are being made to tap alternatives and supplement nitrogen resources by directly

utilizing atmospheric nitrogen through the biological procedure.

In view of fast depleting resources and to avoid depletion of fossil fuel and damage to environment from excessive use of synthetic nitrogen fertilizers, exploitation of the biological nitrogen procedure has gained special importance. A national project on the development of bio-fertilizers is being promoted to produce 10,000 tonnes of bio-fertilizers. The commonly used varities are rhizobium, azotobacter and blue green algae. The first two stem naturally from the soil. The blue green algae grow in the stagnant water of ponds and rice fields. Their efficient strains are being isolated.

Azospirillium-based experiments have also shown promising results. Its use increases yields of cereals accounting to considerable savings.

In the symbiotic nitrogen fixing system, photosynthetically stored energy is utilized instead of fossil fuels. In this process, atmospheric nitrogen is converted to ammonia with the help of biological catalysts, which are present in some of the plants or in the bacteria in the soil. In this system, certain nitrogen fixing bacteria (rhizobium species) grow in close association with a higher plant (leguminous), usually with its roots, where nodules are formed. The process takes place in theise nodules through an enzyme system. Nitogenase is the key enzyme. The efficiency of the prcess and the amount of nitrogen fixed depend on systhesis, control and regulation of the enzyme

One major limitation of nitrogen fixation in legumes is the availability of photosynthetate which is dependent on the efficiency of the process of photosynthesis. Therefore, increased nitrogen fixation must be accompanied with more photosynthetic activity. The fate of nitrogen fixation also depends on how regulation of nitogenase is effected under environmental factors such as oxygen concentration, ammonia in concentration and the presence of certain metabolites.

In the non-symbiotic process, there is a wide variety of “free-living organisms” such as azotobacter or clostridia, which fix atmospheric nitrogen under aerobic (presence of oxygen) conditions, depending on the organism and conditions like proper moisture, temperature, acidity and source of energy.

Blue-green algae also possess the nitrogen fixing ability. These algae are now commercially grown, dried and sold in packets such as bio-fertilizers. Application of a combination of blue green algae at a rate of 10kg of soil containing 5 per cent algae pr hectare is commonly sued. This saves about 30kg fertilizer nitrogen per hectare.

The application of blue-green algae has an additional advantage. It reduces salinity. It is successful with the rice crop because it gets favorably submerged conditions for growth. These algae could not be exploited in wheat fields. However, its use would largely depend on developing efficient strains for adverse environments to ensure better success.

The long term future of Indian agriculture will thus depend on the success of these efforts, which will ultimately mean going back to nature and reducing the dependence on synthetic chemical fertilizers.

The writer is ex-Principal Scientist, IARI, New Delhi

दैनिक जागरण
नई दिल्ली, 13 नवंबर 2011

काम देखकर मिलेगा पंचायतों को पुरस्कार

नितिन प्रधान, नई दिल्ली

अच्छा काम कर रही पंचायतों को पुरस्कृत करने की योजना पर अमल की रफ्तार केंद्र ने बढ़ा दी है। इन पंचायतों के कामकाज का आकलन कैसे हो इसके लिए केंद्र ने राज्यों के अधिकारियो के लिए प्रशिक्षण की व्यवस्था भी की है। अच्छा काम कर रही चुनी हुई पंचायतों को दस से बीस लाख रुपये का पुरस्कार मिलेगा।

देश में पंचायतों को अधिकार संपन्न करने के उद्देश्य से पंचायती राज मंत्रालय विशेष प्रोत्साहन स्कीम चला रहा है। इस स्कीम का उद्देश्य राज्यों को भी पंचायतों को ज्यादा अधिकार देने के लिए प्रोत्साहित करना है। यह पुरस्कार उन्हीं राज्यों की पंचायतों को मिलेगा जो अपने यहां पंचायतों को राजस्व जुटाने से लेकर स्थानीय प्रशासन चलाने तक के अधिकार सौंप चुके हैं। पंचायतों को यह पुरस्कार उनके प्रदर्शन के आधार पर मिलेगा। इस वित्त वर्ष में पंचायती राज मंत्रालय ने इस स्कीम के लिए 31 करोड़ रुपये की राशि आवंटित की है। लेकिन, पुरस्कार के लिए पंचायतों का चयन मंत्रालय के समक्ष बड़ी चुनौती है। चूंकि राज्यों के अधिकारियों को ही इनके कामकाज का आकलन करना है इसलिए मंत्रालय ने तय मानकों के अनुरूप उनके प्रशिक्षण का इंतजाम किया है। मंत्रालय ने पंचायतों के कामकाज के आकलन के मानक तय करने और अधिकारियों को प्रशिक्षित करने की जिम्मेदारी भारतीय गुणवत्ता परिषद (क्यूसीआइ) को सौंपी है। इसके तहत अधिकारियों को तथ्यों के आधार पर आकलन करने और हितों के टकराव का ध्यान रखते हुए पंचायतों के कामकाज की समीक्षा के लिए प्रशिक्षित किया जा रहा है। इसी महीने इस आशय के पहले शिविर में 18 राज्यों के प्रतिनिधियों को प्रशिक्षण दिया गया। देश की सभी 2.4 लाख पंचायतें इस स्कीम के दायरे में शामिल हैं। इसके तहत ग्राम पंचायतों, क्षेत्र पंचायतों और जिला परिषदों के कामकाज के आकलन के आधार पर हर राज्य में पंचायतों का चुनाव होगा। पचास जिला परिषदों से कम वाले राज्यों में एक परिषद को, 50 परिषदों से अधिक वाले राज्यों में दो को पुरस्कृत किया जाएगा। चुनी हुई परिषदों को 20-20 लाख रुपये का पुरस्कार मिलेगा।

◆ पंचायतों को ज्यादा अधिकार दिलाना केंद्र का मकसद

the pioneer
NEW DELHI TUESDAY | NOVEMBER 8, 2011

ICAR proposes 100 more Krishi Vigyan Kendras for larger districts in 12th Plan

SEEMA SINDHU ■ NEW DELHI

With an aim to bring about the second green revolution through adoption of effective scientific agricultural methods, the Indian Council of Agricultural Research (ICAR) under Agriculture Ministry has proposed 100 more Krishi Vigyan Kendras (KVK) across the country in the 12th Plan.

In a proposal sent to the apex planning body, Planning Commission, ICAR has said that in big districts, one KVK is not effective as farmers have to travel long to access the extension services — a system where farmers are given access to latest agri practices, scientific methods, seeds, fertilizers and other required services. So there is a need to have one more KVK in big districts.

It proposes that districts with a radius of 50 kilometers must have one more KVK to give easy access to farmers to the learn latest agri practices. The plan will require ₹500 crore.

At present, the country has 584 KVKs across the country, one in each district. The Government allocates ₹1,200 crore annually for this to ICAR.

The Government has emphasised time and again that the only way forward to increase production is through science-based agricultural practices as land availability is decreasing.

In addition, KVKs affect the financial condition of farmers by providing timely information about prices.

However, the record has been patchy. A 2010 report of the Food and Policy Research Institute says that farmers have not been able to get the benefit of global food price increases and high levels of inflation because they have little access to key information on production technologies, pest control and remunerative markets.