



GREEN FARMING STRATEGIC VISION : 1

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ORGANIC FARMING MAY COMBAT GLOBAL WARMING

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Global warming is a matter of serious concern across the world. The atmospheric concentration of CO₂, a green house gas (GHG) is mainly responsible for global warming. Its concentration at global level has increased from 280ppm (value during pre-industrial time) to 380ppm (currently) increasing at the rate of 1.5pg (petagram) carbon per year. Because of global warming, the temperature as projected will be increased in the range of 2 to 4.5°C which would considerably impact food production. Recent studies indicate the possibility of loss of 4-5 million tone of wheat production in future with every rise of 1°C temperature throughout the growing period. It will also delay monsoon abnormally. As per the report of Intergovernmental Panel on Climate Change (IPCC), the agricultural land use contributes 12% of global green house gas emission, mainly through CO₂, CH₄ & NO₂ where CO₂ is main factor for global warming. Long term use of chemical fertilizer has declined the carbon content in soil. This carbon loss causes soil erosion, degradation in soil structure, poor water holding capacity and nutrient deficiency along with loss of energy reserve. The poor soil organic carbon is also responsible for reducing microbial population in soil and as its aftermath microbial as well as enzymatic activities suffer badly and its negative effect has been observed in terms of poor soil fertility and less crop productivity. The chemical based farming breaks down soil carbon into CO₂ which is released into the atmosphere and adds global warming.

On the other hand, organic farming provides more organic carbon in soil by use of farm yard manure, vermicompost, phospho-compost, leaf manure, forest liter, biofertiliser etc. Looking at detrimental effects of global warming, burning of crop residue should be stopped as it adds CO₂ to atmosphere. Instead, incorporation of crop residues directly or its value addition through customized organic nutrient (as per study of AIBORS under DST project) is very much helpful in building of soil organic matter. It also enhances microbial biomass carbon significantly and enhances population of N-fixers, N-mineralizers and P-solubilisers significantly. This way, organic agricultural practice may reduce concentration of CO₂ from atmosphere and conserve it in the soil (carbon sequestration) and save our mother earth from global warming. Hence, organic farming can minimize the problem of global warming. But when globally certified organic area is 32 million ha, India has only 12 lakh ha certified area (by default more than 1million) only. So, organic farming needs to be promoted more and more to combat global warming.

Warming-induced changes in global water cycle may cause heavy rain in coming years. But as per expert's view, there may be too much water at the wrong time and too little when we need it, as observed recently in Rajasthan. So, the irony of global warming is more rain and less water. Of late, moderate and heavy rains lashed Punjab, Chandigarh and Northern parts of Haryana. On July 6-7, 2010, Chandigarh received 117.8 mm of rainfall. In Haryana, Ambala received 174.1 mm, Panchkula 122 mm. In Punjab, Mohali (110 mm) followed by Ludhiana (66 mm), Patiala (46.8 mm). More than 80 villages in Patiala and Ropar districts were flooded with high water level in Ghaghar River. No doubt, it is due to late arrival of south-west Monsoon. Global warming, perhaps, is not responsible for it. But this is the high time to initiate research study on this sensitive issue which is missing here for quite a long time. Rainfall position in Rajasthan during last few years also requires introspection. When the rain came, farmers were not ready with fertilizers, seed etc and government support was not sufficient. But when farmers are ready, the desert Rajasthan is thirsty for water because of inadequate and sporadic raining.

If this be the situation, what the alternative is? No doubt, the alternative is organic farming. The state like Punjab and Haryana can go for organic Basmati with Pusa 1121, CSR-30 or HBC-19 or any other suitable variety. Farm Yard Manure and vermicompost, each may be applied @ 5t/ha respectively. Biofertiliser like *Azotobacter*, BGA & PSB may be applied. For controlling of stem borer and leaf folder, effective bioagents like *Trichogramma* (*T. japonicum* or *T. chilonis*) may be used. In order to control blast disease, use of *Trichoderma viride* and *T. harzianum* may be helpful. During this period, farmers of Punjab, Haryana and Rajasthan may cultivate cotton following organic package of practice. Even where some rainfall has precipitated, there is scope to cultivate *guar*, especially in Rajasthan. Infact, these areas need sufficient relief from Central Sector or State Sector Schemes of Government.

As per statistics available with APEDA, India ranks 33rd in terms of total land under organic cultivation. Last year, India exported 135 organic products with US \$ 125 million. Both organic Basmati and organic cotton have high market values. So, Punjab, Haryana and Rajasthan may welcome this belated rainfall with organic mind for better opportunity.

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