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Input Management for Sustainable Agricultural Systems

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ABSTRACT: Low input farming systems (LIFS) can be defined as those which maximize the use of on-farm inputs. Compared to farming systems heavily relying on off-farm bought inputs (thus high input farming systems or HIFS), LIFS will have a physical productivity limited by the maximum on-farm resources that can be mobilized. LIFS can then be associated with lower output. The paper addresses the issue why LIFS should be considered as a core option for India. Indeed, at the farm level, LIFS might have a higher efficiency than HIFS. In addition, from an environmental point of view, not only are LIFS able to reduce pollutions risks but allow producing positive amenities in terms of landscape and biodiversity as well. Despite these assets, the paper shows how, in the long term, the technical and economic competition between farming systems entails the advantage of HIFS upon LIFS.

More precisely, the inter-regional competition can be analyzed through a 'cerealization' process of the whole agriculture: more cereals produced upstream, with more incorporation into the livestock sector downstream. On-farm resources and closed nutrient cycles (LIFS) are progressively replaced by off-farm resources and opened cycles (HIFS). Developing LIFS at Indian scale needs radical changes in the policy. Notably, while decoupling has been thought as a way to promote LIFS, the analysis proposed shows that the competition mechanisms are likely to achieve the opposite results. A CAP reform targeted on LIFS evenly distributed on the Indian territory is what is at stake in order to reach a sustainable Indian agriculture.

Key words: *Input Management, Sustainable Agricultural Systems, Input*

INTRODUCTION

The concept of two global commonalities-biological diversity and nutrient cycling among agro ecosystems is supported by the literature on ecosystems and their management anecdotal account of indigenous practices, and the rapidly emerging literature on agro ecology. Organic matter is the basis of all bio-geo chemical cycles. The fundamental issues concerning efficient use of organic matter are leakage of nutrients from agro ecosystems and the rates of decomposition. Organic matter and the nutrients if contains are lost from soils by run off and mineralization, both of which can be controlled by appropriate tillage practices. Loss of nutrients to mineralization is also controlled by assuring sufficient inputs of plant or animal material to maintain the soil organic matter (SOM) reserves. Legumes are important in maintaining SOM and increasing soil N suffer. In addition, they prefect the soil from run off water and wind erosion and improve infiltration, agro forestry systems use leguminous and other trees to provide alternative crops , produce animal forage and fuel, recycle nutrients for crop use and project soil from wind and water erosion.

Plant biodiversity plays an important role in pest, disease, and weed management. Crop rotations are effective in controlling pests, diseases and weeds. Living mulches control weeds and minimize the need for herbicides; Increases in structural diversity within the crop canopy leads to greater diversity in insects and less damage from insect pests.

Integration of animals into Agro ecosystems offers further diversity and stability. Integration of animals facilitates nutrients movement and increases the opportunities for efficient nutrient management across the whole farm system. Animals increase overall net productivity of the farm and reduce environmental degradation by serving as alternatives to crops on the marginal areas of farms by utilizing crop residues as feed.

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