AGRICULTURE, AGROCHEMICALS AND THE URBAN INTERFACE

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ABSTRACT

Agriculture is a devastating human activity. It destroys natural habitats and annihilates plant and animal species. The demand for food and fiber has always had priority over nature preservation. The current agricultural challenges are the scarcity of land, the preservation of original Nature, and the use of modern agricultural technology: plant breeding, use of agrochemical and mechanization of farming. The example from the Green Revolution commencing more than 60 years ago shows us what we can do now and in the future, and how to avoid some of the too problematic side effects of agricultural production.

Keywords: Land use, fertilizer, pesticides, Nature conservation

INTRODUCTION

Agriculture is a devastating human activity. It destroys natural habitats and annihilates plant and animal species; the demand for food and fiber has always had priority over nature preservation.

In the early sixties, doomsayers warned of rapidly approaching starvation scenarios in particularly Asia. The yield per unit area could not be sustained and began to drop in some areas. Now, more than half a century later, we have developed new technologies that make agriculture more productive; we can harvest twice as much or more per unit area, as we could 60 years ago. We call this leap of agricultural productivity the Green Revolution. We now can feed the world, but at a cost.

This presentation focuses on the benefits of this period in agriculture and the darker side of the success. The lesson learned of this international effort to increase yields is the successful combination of:

- Plant breeding,
- Fertilizer and pesticide use
- Mechanization of the agriculture industry.

Overall, the Green Revolution was a major achievement for many developing countries in Asia and gave them an unprecedented level of national food security. The successful adaptation of this scientific revolution in agriculture resembled that in many industrial countries more than 100 years ago. The Green Revolution also lifted a large number of poor people of Asia out of poverty.
Modern plant breeding initiated the success of increasing yields of wheat and rice at the CGIAR (Consultative Group on International Agricultural Research) institutes, CIMMYT (International Maize and Wheat Improvement Center) in Mexico, and IRRI (International Rice Research Institute) in the Philippines. It involved the development of high-yielding varieties of particularly wheat and rice, expansion of irrigation infrastructure, modernization of management techniques, and distribution of fertilizers, and pesticides to farmers.

One of the less proclaimed benefits of the Green Revolution was the slowdown of exploitation of natural habitats. The expansion of agricultural land slowed down dramatically (Fig. 1). Even though we still exploit Nature by farming virgin land it is not at the same pace as it was before the Green revolution.

THE CHALLENGE

The development in agriculture during the Green Revolution came at a cost. The excessive use of agrochemicals was environmentally damaging. Sometimes, toxic pesticides even poisoned farmers and killed non-target organisms. Overuse of pesticides and fertilizer polluted streams, rivers and lakes. Particular pesticides contaminated drinking water resources and they gave the public a mixed feeling about the use of modern chemistry in agriculture and gave the organic movement an impetus.
The challenge in the future is to judicially use the agrochemicals and the progress in plant breeding, with due respect for Nature at large.

The basic concept of future agriculture is the endeavor to improve the driving forces of better varieties, optimal use agrochemicals and diversifying the agricultural production. If we neglect the aim of harvesting more per unit area of land, we must transfer huge acreages of untouched Nature into agricultural land. It will cause severe consequences for the biodiversity and sustainability of our World.

REFERENCES CITED

