

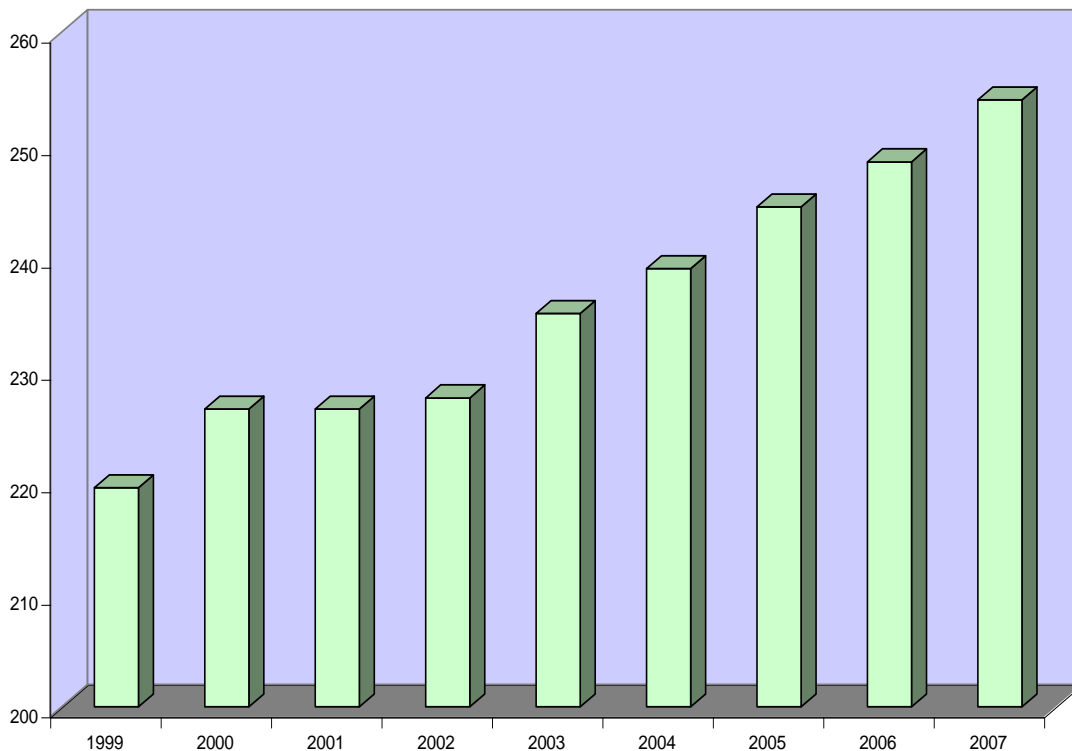
THE ACTUAL SITUATION

The students of the master project in “Industrial crop and technologies” –
University of Udine (Italy), University of Zululand (South Africa)

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The fat consumption in the world is increasing both for food and no-food purposes. The green chemistry technologies allow new utilization of these crops. The oilseed production trend is growing everywhere.

Expected world production of oilseeds (Mton) (FAPRI)



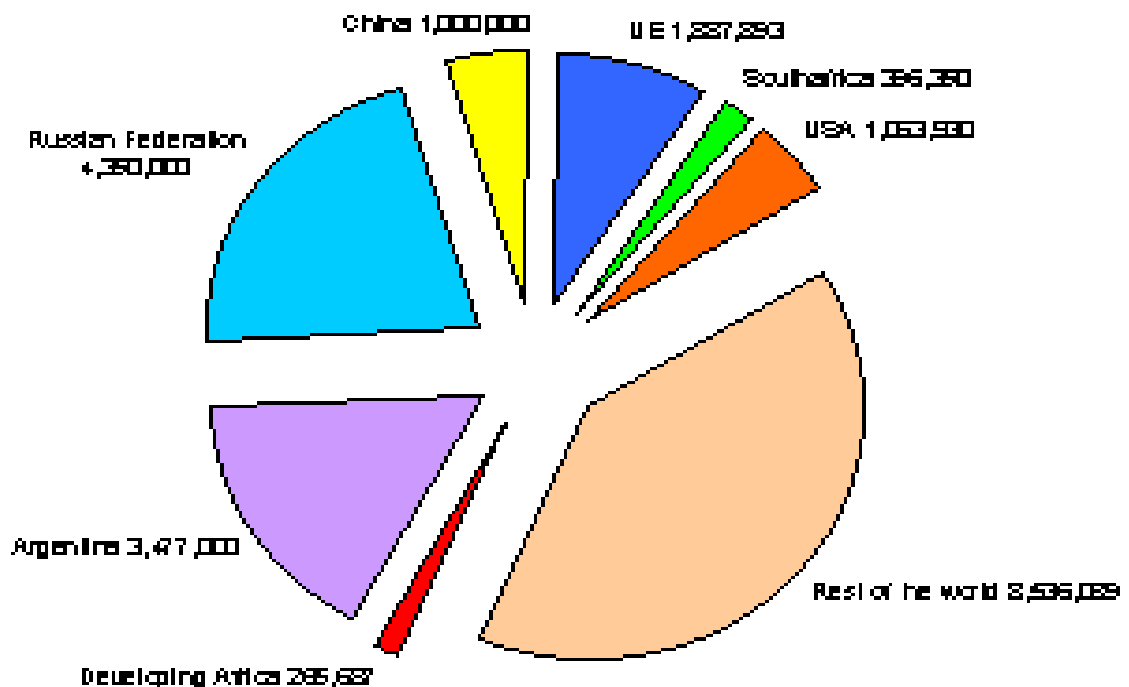
The benefits of oilseed crops and their products are:

- Inserted in a crop rotation program they increase the organic matter content in soil;
- They have a low nitrogen request;
- Sunflower, in particular, is a low input crop very useful in difficult conditions of late planting and early harvest in sub-optimal soil water resources conditions often experienced by small farmers;
- Their industrial processing is faster and cheaper;

- The oils could be utilized in the green chemistry, which is a low pollution process, and its products have 99.9% of biodegradability;
- The production of biodiesel starting from oil crops allows to reduce the fossil fuel shortage.

In the last 30 years Africa became an importer of palm, soy, canola and sunflower oil. In South Africa there are 41 million people with an oil consumption of 19 Kg/person/year. This country import 50% of its oil needs and the one of the biggest importer in Africa. The sunflower situation is explained in the following graphics.

Sunflower seed area harvest (Ha) (FAO,2000)



The problems in developing oilseed and sunflower cultivation in South Africa, and in general in all developing countries, are related to:

- Lack of technology
- Lack of investment on research for new and suitable hybrid varieties
- Lack of suitable soils
- Climatic conditions
- Difficult to introduce industrial chain at the small scale farmers

To improve sunflower crop in these countries some strategies have been proposed:

- Germplasm collection from local regional and international sources
- Carry out multi locational on farm evaluation of varieties before release
- Involvement of oil processors in evaluation of expressibility of varieties

MAPUTALAND PROJECT: MASTER PROGRAM

Aim:

- To provide an advance training in principle and practices of industrial crop production, processing, quality assessment and income generating for small scale farmer in participation with the Universities of Zululand and Udine in joint venture;
- To improve rural livelihood of the people in the rural areas through effective capacities and human capital development;
- To understand the different conditions and techniques used in both Developing and Developed Countries.

Theme:

- Know agronomy and methods of sustainable industrial crop production;

- Training and experience in the use of information technology and communication skills;
- Study of all aspects of industrial food crops including crop protection and post harvest technology causes;
- Application of new technologies including organic farming and industrial crop.

The project Maputaland :

- It is a world-renowned centre of endemism with high biodiversity;
- The manipulation by natural and human systems causes a reduction in ecosystem stability, productivity and overall sustainability



Main causes are : high degrees of environmental degradation (declines in soil fertility, vegetation cover, biodiversity loss, increasing soil erosion); intensive use of inputs without considering socio-economics environmental and production factors of tropical agriculture system.

PROSPECTIVES

This project should lead to achieve:

- a new sustainable cropping development by
 - I solving the soil structure degradation issues toward reduced cost and lessened inputs land use;
 - II introducing farm-practicable best management practices (such as zero tillage, controlled traffic, green manure and rotation crops);
 - III educating new experts providing both the link between research in agriculture and the farmers;
 - IV developing breeding program that allows the selection of higher water use efficient a high stable yield varieties;
- the re-equilibrium of the agro-forestry system by
 - I avoiding soil erosion and desertification ;
 - II avoiding soil pollution (reducing the quantity of pesticides and chemical fertilizer);
 - III conserving natural resources and improving soil fertility;

- an economic diversification and generation of wealth for the benefit of all communities
 - I introducing new ecologically compatible crops and new profitable uses of oilseeds (biodiesel, tension actives, plastic and medicines);
 - II educating farmers on sustainable land management and giving them the tools to achieve it, improving lifestyle, employment, family and rural town prosperity.