

Oilseed production and rapeseed breeding in Iran

Mohammad Reza AHMADI,

Seed and Plant Improvement Institute, Karadj-Iran.

There are five oilseed crops - sunflower, soybean, sesamum, groundnut and safflower - cultivated over an area of 300 thousand hectares in Iran. This is less than % of the arable land (18 million ha).

Sesame and safflower are indigenous and have been cultivated since ancient times as oil-producing crops in climatically hot and dry regions of Iran. Marco Polo mentioned the production of sesame in Persia. Two other oilcrops, sunflower and soybean, are introduced crops and are grown under moderate climates, each of them on an acreage of around 100 thousand hectares.

Significant amounts of nonoilseed sunflower seeds -confectionary type- are consumed in other than oil-markets. Approximately another 100 thousand hectares area belongs to this type of sunflower with large kernels. Groundnut has also to be considered as an introduced crop in Iran. It is mainly grown in the province of Gilan.

As a consequence of insufficient domestic oilseed production, there is a big demand of vegetable oils in Iran, so that more than 85 percent of domestic demand must be imported.

Although there was a significant positive trend in growth rate and productivity of oilcrops in the past three decades, a perusal on year wise percent of change in area production and productivity during 1960-1990 reveals a fluctuating trend.

Rapeseed, *Brassica napus*, is not yet a commercial crop in Iran. Being highly productive amongst oilcrops, it was thought desirable to introduce it. In 1990-1991, two winter-type varieties Quinta and Belinda were grown on an area of 100 ha in the provinces of Mazandaran and Gorgan. Both varieties yielded over 3 tonnes per hectare. The variety Quinta showed better standing ability than Belinda in rich soils of the region. A series of coordinated winter- and spring-rapeseed cultivar trials have been conducted in several locations throughout different parts of the country in 1988. These trials were established to:

1 - Determine geographical areas of adaptation and identify cultivars adapted to each location. As a result, we determined that rapeseed can be grown successfully in the coastal provinces of the

Caspian Sea and in all other regions with sufficient cold periods in winter for vernalization of winter-type rapeseed. The largest potential production area are coastal provinces with moderate winter and sufficient rainfalls during the vegetation period. In the Southern part of the country, many true biennial cultivars do not fully vernalize, which delays flowering and reduces seed yield.

2 - Other agronomical experiments are performed for determining time of planting, time of harvesting, plant density and harvesting techniques. Researches carried out under the coordinated research projects on oilseeds generated valuable data and information on various aspects of oilcrop improvement and production technology.

In the adaptative trials conducted in five locations in different parts of the country, rapeseed-wheat rotations were compared to fallow-wheat rotations. There is a good score of introduction of rapeseed in rotations with wheat or other crops.

In 1990-91, different rapeseed research projects were conducted at the Karadj center of the Seed and Plant Improvement Institute including various variety trials, transfer of cms-polima to improved varieties, study of cms-polima stability under environmental conditions of Karadj, perform of crossing blocks to enlarge the genetic variability of breeding materials and prosecution of segregating generations of earlier made crosses.

Significant gains in yield can be expected from conventional breeding programs in rapeseed ; further improvement will be possible when hybrid seed production is introduced ; and new genetic techniques that are already employed or are being developed should be particularly useful for combining of stress and disease tolerance with improved quality and high yielding lines.

We remain optimistic that rapeseed will become an accepted commercial crop in Iran, when some technical problems and hindrances concerning laboratory methods for determining the fatty acid composition and glucosinolates are solved and removed.