

Europe's Self-Sufficiency in Rice Due to Herbicide Use

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Four countries account for 97 percent of the European Union's production of rice: Italy, Greece, Spain and Portugal. The E.U. is 85 to 90 percent self-sufficient in rice.

Weeds are the most significant of the pest problems that affect European rice production. The numerous experiments conducted each year in European rice fields reveal that the failure to control weeds may result in the complete loss of the rice yield [1][2].

Prior to the development of herbicides, weeding was done by hand. In May, the rice fields had to be weeded to prevent the young rice from being choked by other vegetation. Hundreds of women known as *le mondine*, or weeders, arrived from all parts of Italy to perform the delicate task of rooting out the weeds while leaving the young rice plants in place [3]. *Le mondine* have become a nostalgic memory, immortalized by the famous film *Riso Amaro* or 'Bitter Rice.' It was a hard life for *le mondine*. They had to work bent double, up to their knees in water under a blazing sun. As the women weeded, they sang. One of the songs, *Bella Ciao*, was adopted by the Italian Communist Party to express the social injustice of the system [3].

A key factor leading to adoption of herbicides by European rice growers was a reduction in the availability of agricultural labor which took place after 1960[4]. Rapidly growing industry was concentrated around cities such as Milan, Turin, and Genoa. Many people previously employed in agriculture changed jobs. In Italy, the percentage of workers employed in agriculture fell from 40 to less than 7 percent. As a result of the adoption of herbicides and other technologies, the labor requirements for rice production dropped from more than 500 hours/hectare to about 23 hours/hectare [5].

Acreage of organic rice in Europe is very low: in Italy there are 5400 organic hectares equaling 2 percent of total rice acreage. Organic rice growers in Europe rely on hand weeders for pulling weeds out of fields. The yield obtained in European organic rice systems is usually 25 to 30 percent lower than obtained in ordinary cultivation, mainly because of the great difficulty in controlling weed infestations[2].

References

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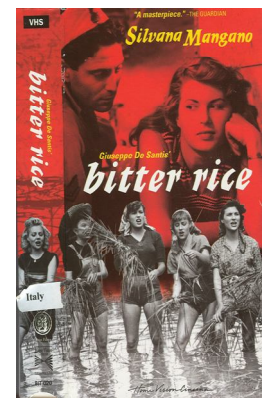
Flooded rice fields in Italy



Weedy rice field in Italy



Le Mondine of the 1950s



Riso Amaro, "Bitter Rice"



E.U. Rice: Herbicide Application