

# SUNFLOWER SEED PRODUCTION AND PROCESSING IN ROMANIA

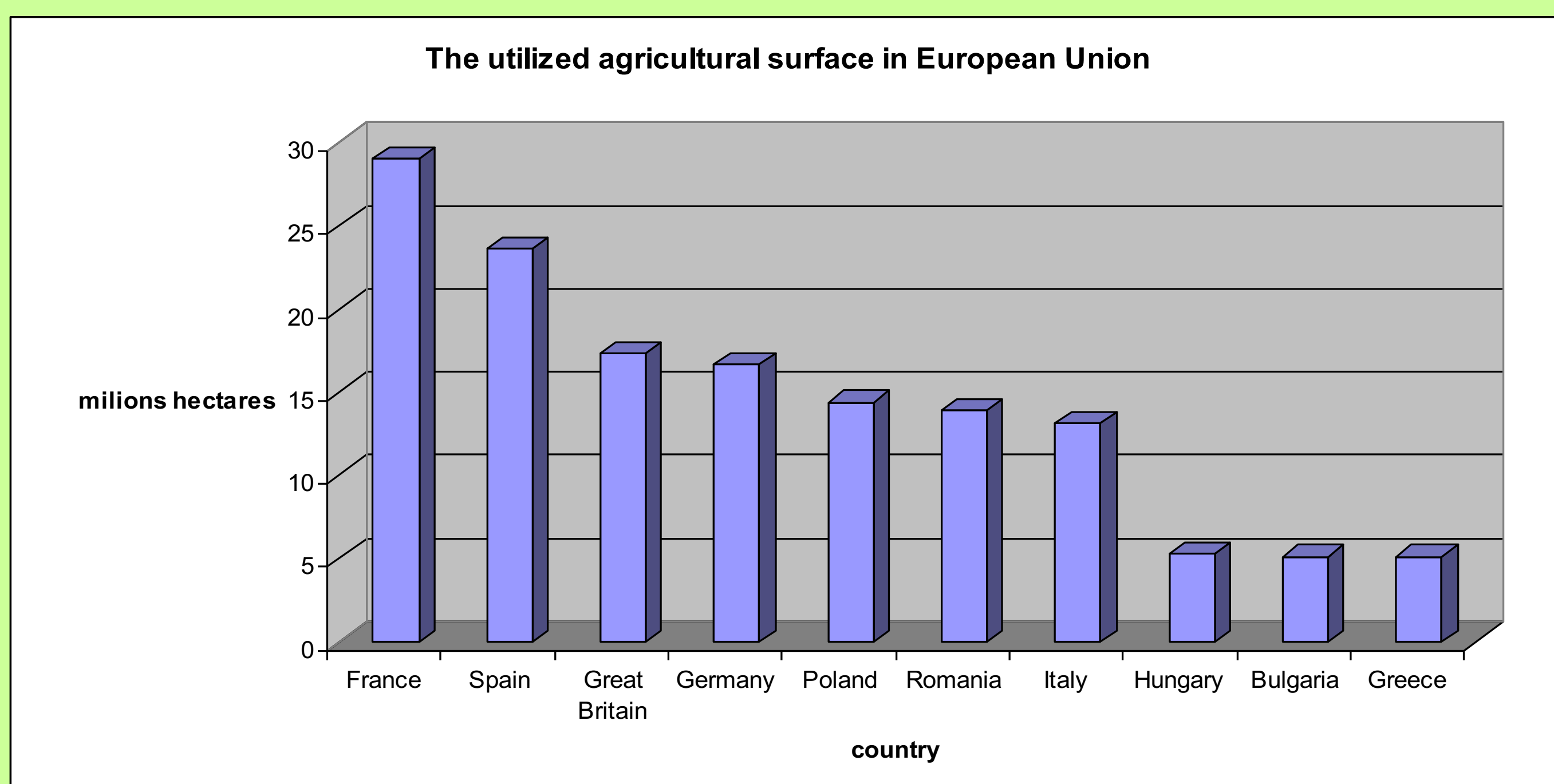
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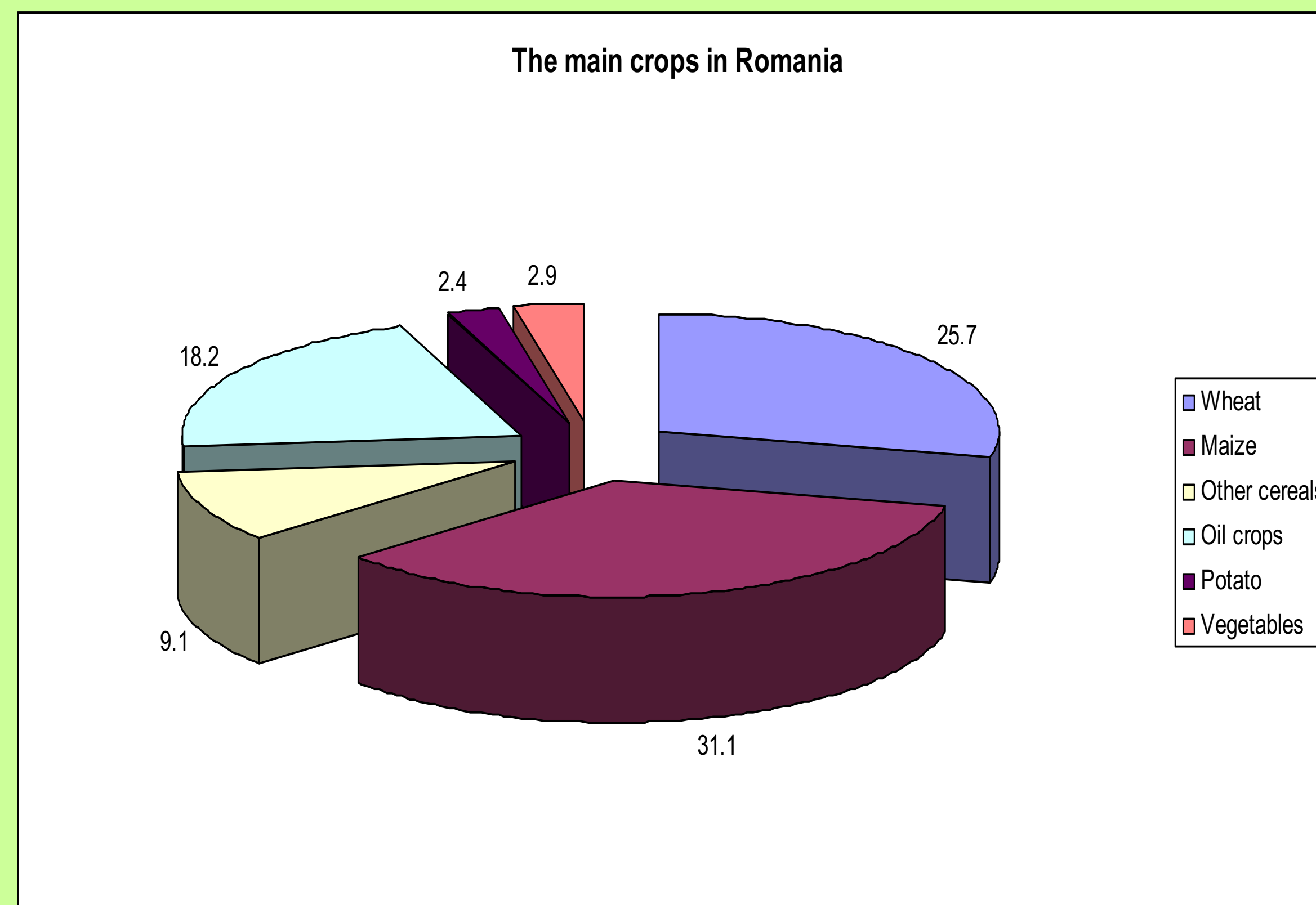
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Being situated halfway between the equator and pole, Romania is located in the temperate continental climate. Romania's climate is not uniform but are outstanding issues from one region to another, with different types of soils and on that basis, the country it is creating some climatic regions which correspond to certain provinces (regions soil). *Plains stage* with absolute altitudes ranging from 0-300 m, they occupy about 34% of the country is reaching fullest development in the south and west. The whole region of plains is covered by deposits of loess, on which rich black chernozem soils have developed, providing a strong base for agriculture. Romania, as member of the European Union is situated on the 6<sup>th</sup> place in the European Community agriculture, taking into consideration the utilized agricultural surface.



Romania 13.9 millions hectares  
I: 8.2 ( 59%) = cultivated land  
II: 5.7 (41%) = other utilization



To increase the productivity in agriculture, the Romanian Government take into consideration the following measures:

The optimization of the agricultural units for the land utilization (farms) area. In present there are many small farms;

Growing the possibility of capitalization of the farms, by an easier access to the national and European funds; Growing the professional knowledge of the farmers;

New equipments and new technologies for the agricultural practice;

Well and sustainable developing of the rural area (promotion of the modern methods for the farms developing, by diversification and rotations of the crops, as well as the IT applications or robotics).

Sunflower crop has an important place in the word agriculture, due to many advantages: the capacity to release high seed yield and good oil content. Sunflower kernels are used in industry for obtaining good oil for human food as well as, the secondary matter used in animal food. After being obtained first sunflower hybrids with high oil content, area cultivated with sunflower crop has increased over the world, including our country, Romania. There have been obtained sunflower hybrids with low oil content and high protein content, these being used as confectionary sunflower.

Romania has the largest area cultivated with sunflower in EU. Each year it is cultivated around 1 million hectares. Also, Romania is releasing the highest sunflower seed production in EU. In 2017 year, on 1.010 million hectares it has been obtained 3.16 millions tones. Unfortunately, 60% of obtained seed is going to Export and only 40% is processed inside of the country. Romania exports also sunflower oil, the export/year being 2.7 higher comparing with import.

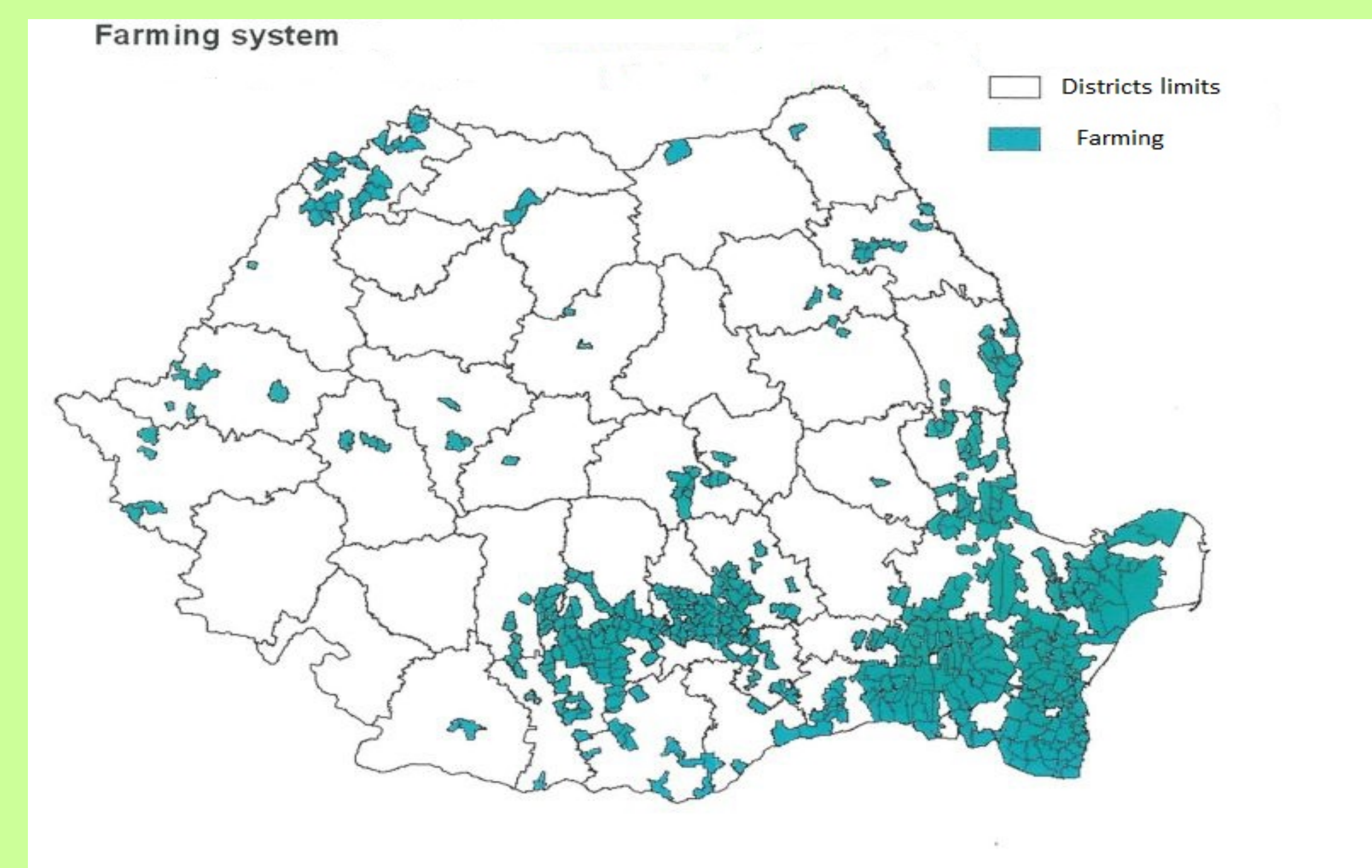
Sunflower (*Helianthus annuus*) oil is the major product of seed processing, that contributes 95% to the total value of the crop. The oil is mainly used as a salad oil and cooking but industrial applications include use as frying oil and manufacture of mayonnaise, margarine, shortening and other products. Conventional sunflower oil is characterized by a fatty acids profile made of saturated palmitic (6-7%) and stearic (3-5%), monounsaturated oleic acid ( 18- 41%) and polyunsaturated linoleic acid (50 -72%). It contains moderate to high levels of tocopherols. In the last years, breeders have been successful in developing a wide range of novel and healthier high oleic oil type.

In Romania sunflower is the largest source of vegetable oil, followed by soybeans, canola and corn. Some of sunflower oil, mixed with rapeseed oil is used for biodiesel producing.

There are many oil factories which are producing oil with very high quality :good color, good smell, high nutritive value (90% unsaturated fatty acids), high stability, high capacity for long period of conservation.

The oil factories have different capacity of sunflower seeds processing: from 2200 to 150 tones/day.

Most of oil factories in Romania are developing the oil production under the quality concept and the assurance of food safety. There are some factories which started the oil production for many years ( 19<sup>th</sup> century) and most of them have certifications for quality gave by Lloyd's Register Quality Assurance (LRQA). The certification is conform ISO 9001/2008, ISO22000/2005, also FSSC 22000 ( Food Safety System Certification). There are producing less 22 types of sunflower oil for food consumption, in Romania.



In Romania there are cultivated some sunflower hybrids belonging to confectionery type, but not enough as the consumption is. People knows the benefits of sunflower seeds referring to therapeutic and nutritive value (many vitamins and minerals), these being a valuable source of good protein.

Numerous studies have showed the therapeutic value of sunflower seeds. They have much benefit on the human organism, being much utilized by eating as snack or mixed with different other food products. Sunflower seeds are very rich in proteins ( 30-40%), fats (27%), vitamins (E, B1, B3, B6), minerals ( Ca, P, Mg, Se, Fe, Cu) as well as phytosterols and fibers. There are many kinds of sunflower seeds Organic Certified.

Some people are consuming sunflower seeds as raw vegan food.

In Romania there are many small factories for dehulling, also for packing sunflower seeds. Much sunflower seed, confectionery type is imported from Bulgaria, Turkey or Spain.



In the last years there have been developed the factories for producing sunflower crude oil, obtained by cold pressing method. Many of these are kind of family factories, but they are producing very healthy and high quality oil (many Awards received at some International Exhibitions). Very famous are CARDINAL and ELIXIR brands.

Cardinal oils are very healthy being obtained by cold pressing. There are some new generations of oils, made using new technologies, more efficient, giving 100% natural oils (good content of fatty acids, E vitamin, also other nutrients, with possibility to be used for salads, also for cooking or frying. Comparing with olive oil, Cardinal oils are the same taking into consideration the fatty acids content, but they have much better taste.

Elixir is a family brand oils with a history of 19 years. The factory is situated in Cluj, The oil extraction method is a traditional one, with a low temperature of processing (under 50° C). The seeds are pressed without dehulling. Each year, starting with 2015, Elixir oils are awarded with Superior Taste Award, by The International Taste &Quality Institute in Brussels.

