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EDIBLE INSECTS AS FOOD OF THE FUTURE

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Eating insects is a common practice in many parts of our planet. According to the UN Food and Agriculture Organization data, insects are one of the staple foods for 2 billion people around the world (namely in 36 African, 29 Asian and 23 countries in the Americas).

Since 2016-2017 ten times more researches on edible insects has been done and more scientific publications were made than in the previous 10 years. In the course of studying edible insects, experts came to the conclusion that the amount of nutrients they content are equal to those from common farm animals but their most significant advantage is environmental stability. Scientists believe that this factor will play a key role in the development of insects as “superfood of the future” [1].

Edible insects can be interesting in terms of nutritional content of minerals such as iron, zinc, potassium, sodium, calcium, phosphorus, magnesium, manganese and copper. For example, the large caterpillar of the moth Gonimbrasia belina called mopani or mopane has a high iron content (31–77 mg per 100 g of dry matter) and so does the grasshopper L. migratoria (8–20 mg per 100 g of dry matter). Caterpillars of mopane could be a good source of zinc (14 mg per 100 g of dry matter) together with palm weevil larvae Rhynchophorus phoenicis (26.5 mg per 100 g of dry matter). On the other hand, the heavy metal content of an edible grasshopper Oxya chinensis formosana determined by Hyun et al. was low and safe for human consumption [3, p.22].

Until recently, beetles and caterpillars were the most popular edible insects, but crickets have the greatest potential in the global market. If you try, you can find bread or beetle noodles in some European grocery stores, but protein bars made from cricket flour are becoming quite common in the European and North American markets. For some reason, crickets look more appetizing in the eyes of Western culture, although other insects, such as the flour beetle, contain the same amount of native protein.

In the past, the only Westerners who dared to try insects were curious tourists, but nowadays food made from edible insects has become so popular that there is a real opportunity of opening an international trade. For example, the batch of limited-edition Crunchy Cricket Loaves has been whipped up in The Exploratory - Roberts' concept kitchen. Each loaf contains around 336 crickets, which are dried, ground, mixed with wheat flour and grains and then baked, resulting in a crunchy finish, according to the firm. Roberts' Crunchy Cricket Loaf contains more protein than standard bread and is also a much more environmentally-friendly and sustainable source of it, claimed by the company [2].

Food experts believe insects can also actually help to significantly reduce body fat, due to being packed with good fatty acids, calcium, iron, vitamin B12 and vitamin C. They're also low in saturated fat [2].

Summing up, it is important to emphasize that recently the consumption of meat in the world has grown significantly, respectively, to meet the demand in such volumes, the amount of resources required for breeding animals and their subsequent processing has increased, which has led to global deforestation, pollution and an increase in the level greenhouse gas emissions. The use of insects for food may meet the human need for protein-containing products, but the conditions for their breeding require further study.

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COTTON GROWING IN UKRAINE

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Nowadays many countries face the problem of overcoming the global economic crisis undertaking attempts to raise the economy and create better conditions for their citizens. Ukraine being agrarian country has large resources of fertile black soils in its great treasury. That is why the agronomic direction is gaining great importance. But it is not an easy way that our country needs to overcome. It envisages new measures and means to improve the agrarian condition of the country. One of the means under consideration can be growing cotton, demand for which is growing every coming year. Besides, cotton is a driving force for economic development and is crucial for the economies of developing countries, which has been confirmed by numerous reports [1].

Cotton growing could start the process of creating enterprises for its processing on the one hand and, in its turn, it could provide creating new jobs for the citizens of the country at present on the other. It is considered to be the uppermost strategic problem of today.

Cotton is used by everyone in everyday life from the moment you wipe your face in the morning with a cotton towel up till night when you have rest and sleep on a sheet made of cotton. This plant belongs to the genus Gossypium, a family of mallows - Malvaceae. It is a semi-shrub 1-1.5 m high, with a strong stem and developed lateral shoots, pubescent with a single tier of hairs. The box (its fruit) is round, large, opens with 4-5 leaves, with a beak at the top, and when opened it opens wide. Its fiber is 28-32 mm long, thin, having seeds with a lining. [2].

Cotton is a very demanding plant as for its cultivation needs a hot climate and plenty of moisture. Therefore, cotton fields should be supplied with irrigation systems and a network of canals. Cotton growing has its peculiarities, including the need in frequent introduction of pesticides and herbicides, as well as genetically modified seeds for sowing - such a practice enables to reduce the plants' sensitivity to harmful factors. Therefore, the main competitor is organic cotton, the cultivation of which requires less use of pesticides, herbicides and none of genetically modified seeds. Cotton picking is carried out by using mechanical or manual methods.

The first publication on cotton cultivation dates back to 1952, according to which the author claimed that subject to irrigation as well as large areas under cotton growing provides high and stable yields.