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Chapter 5

LINSEED (*LINUM USITATISSIMUM L.*) PRODUCTION TRENDS IN THE WORLD AND IN SERBIA

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ABSTRACT

The aim of this study was to examine the changes that have occurred in the production of linseed in the world, and as well the conditions that led to manifested trends. During the monitored period (2009-2013) linseed production in the world was 2.09 million tons and it was growing at an average rate of 1.48% per year and records stability, CV=7.28%. The growth in production of linseed was dominantly influenced by the growth area. Five countries (Canada, China, Russia, India and U.S.A) provide 72.50% of global linseed production. The European top producer is the Russian Federation (13.86%). A significant producer is the EU-European Union with a share of 7.13%. In the tested period, linseed in the world was sowing on the average area of 2.15 million ha, and showed an annual 3.08% trend rate increase, and stability (CV =7.09%).

Average yield of linseed during the monitored period in world was 972 kg. There was evident tendency of decrease of yield growth rate (1.54%) and variation (CV = 8.18%).The highest average of yield, in the world, per continents, was inAmerica (1,377 kg ha^{-1}), Australia (1,120 kg ha^{-1}) and Europe (1,080 kg ha^{-1}). The lowest yields were in Asia (685 kg ha^{-1}). EU countries had high linseed yields (1,335 kg ha^{-1}). During the examined period, there was a

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decline in yields in the world. The growth area had dominant influence on increase of production of linseed.

Keywords: *Linum usitatissimum L.*, area, yield, production, world, Serbia

INTRODUCTION

Linseed or flax (*Linum usitatissimum* L.) is a member of the genus *Linum* in the family *Linaceae*. The plants that are in use ere cultivated and appears to have been domesticated from the wild species *Linum bienne* called pale flax (*Allaby et al., 2005).* It is a food and fiber crop cultivated in cooler regions of the world (*Allaby et al., 2005).* The textiles made from flax are known in the Western countries as linen. The oil is known as linseed oil plant species is known only as a cultivated plant. Linseed in is one of the most important textile plants, by its relevance right after the cotton, picture 1. Flax fibers are extremely strong, sturdy and elastic and used for the production of flax cloth, high-quality paper, etc. Also, linseed is one of the most important sources of drying oils. Seed oil content is from 32% to 43%. Linseed oil is mainly used for making paints, varnishes, soft soap and printing inks. Linseed oil is used for making some pharmaceutical products. The remains after squeezing oil are used as fodder rich in protein (Glamočlija et al., 2015; USDA Grin, 2014; Popović et al., 2016a). Flax is grown for oil, as a nutritional supplement, and as an ingredient in many wood finishing products. Flax fibers are used to make linen. Flax fibers which were made from the stem of the plant, and are two to three times as strong as those of cotton (Morris, 2003; Filipović et al., 2014, Glamočlija et al., 2015, Popović et al., 2018).

Linseeds occur in two basic varieties: brown and yellow or golden (also known as golden linseeds).Most types have similar nutritional characteristics and equal numbers of short-chain omega-3fatty acids. The exception is a type of yellow flax called solin (trade name Linola), which has a completely different oil profile and is very low in omega-3 FAs. Linseeds produce a vegetable oil known as flaxseed oil or linseed oil, which is one of the oldest commercial oils. It is an edible oil obtained by expeller pressing, sometimes followed by solvent extraction. Solvent-processed flaxseed oil has been used for many centuries as a drying oil in painting and varnishing. Linseed oil is a colourless to yellowish oil obtained from the dried, ripened seeds of the flax plant (*Linum usitatissimum*) (Jones, 2003; Vereshagin1965; Muir, 2003; Popović et al., 2016a).

Linseed can safely be in use as an ingredient in food (USDA National Nutrient Database for standard Reference, 2003). "Functional foods" are foods or dietary components that may provide a health benefit beyond basic nutrition. Flax is more and more recognized as a functional food and has recently gained attention in the area of cardiovascular disease, primarily because it is the richest known source of alpha-linolenic acid, the phytoestrogen, lignans, as well as being a good source of soluble fiber. Regular consumption of flaxseed products can affect serum total and low-density lipoprotein cholesterol concentrations, reduce postprandial glucose absorption, decrease some markers of inflammation and raise serum levels of the omega-3 fatty acids, ALA and eicosapentaenoic acid. The flax seed has been shown to possess significant antioxidant and anti-inflammatory functions in experimental as well as human studies. The flax seed supplementation in diet revealed potential health benefits in situations