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## The law of the field crop performance (agrophytocenosis) productivity: The key to the future of agriculture

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The worldwide conventional deep soil tillage by annual ploughing has no proved theoretical fundamentals and is based only on the primitive sensual empirical experience. The greatest disadvantage of this method is its negative impact on the soil: its degradation, soil carbon material mineralization, rising emissions of carbon dioxide, and climate warming. According to the geo-botany theory the typical field crops stands are natural field plant communities (agrophytocenosis). Their cognition productivity therefore should be evaluated from the theoretical point of view. The soil tillage and weed control can be proved by the novel law of crop and weed communities' performance. This law can be defined as follows: Productivity of a typical field plant community (agrophytocenosis), including overall dry mass of crop and weeds, growing under identical conditions is relatively constant. In general, this phenomenon can be described by the following equation:  $A=Y+Xb$ , where A signifies maximum productivity of the whole dry mass of the whole community; Y - crop dry mass yield under the existing growing conditions of the community; X - weed mass; b - yield depression rate, indicating the degree of yield increase or decrease when weed mass changes by one unit. Based on this finding we can predict that this novel field crop performance productivity law will theoretically and practically revolutionize the cognition of soil tillage and weed control. Consequently, in the nearest future, the soil tillage and weed control disciplines will adopt this theoretical background and modernize the traditional empirical basis of soil tillage technologies. New theoretical cognition will have to reject annual deep plough and apply shallow precise soil tillage. These means will mitigate soil degradation, reduce the amount of carbon dioxide emission into the environment, slow climate warming, and will save costs of the non-regenerative energy in agriculture.

### Biography

Petras Lazauskas has graduated from the Lithuanian Academy of Agriculture. As a Scientist, he started working on the problems of weed control applying a traditional empirical method of cognition. Subsequently, he was involved in a non-chemical weed control using theoretic geo-botanic method of cognition. He has participated in organic farming and weed control events in Germany, France, USA, Italy, Sweden, Czech Republic, Hungary, Latvia and Russia. In 1997, he has won a Bursary to attend the British Crop Protection Council Conference in Brighton.

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