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ІНСТИТУТ МЕХАНІКИ ТА АВТОМАТИКИ АПВ НААН

ДЕРЖАВНИЙ БІОТЕХНОЛОГІЧНИЙ УНІВЕРСИТЕТ

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В збірнику представлені тези доповідей науково-педагогічних працівників, наукових співробітників, аспірантів та студентів НУБіП України, провідних вітчизняних і закордонних вищих навчальних закладів та наукових установ, в яких розглядаються завершені етапи розробок.

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STRUCTURE OF BAYESIAN NETWORK OF OPTIMIZATION METHODS OF SYSTEM OF MACHINERY OF PLANTING

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To preliminarily determine the structure of Bayesian network [1], the influence between the operation parameters [2] and the crushing rate was analyzed [3]. In the actual harvesting process [4], farmers cannot change the grain moisture content at any time [5], so the grain moisture content was not used as a node in the Bayesian network [6]. In addition, the influence of threshing drum speed and feed rate on

crushing rate was analyzed under different concave clearance, when grain moisture content was at medium level. The image is as follows in Fig. 1.

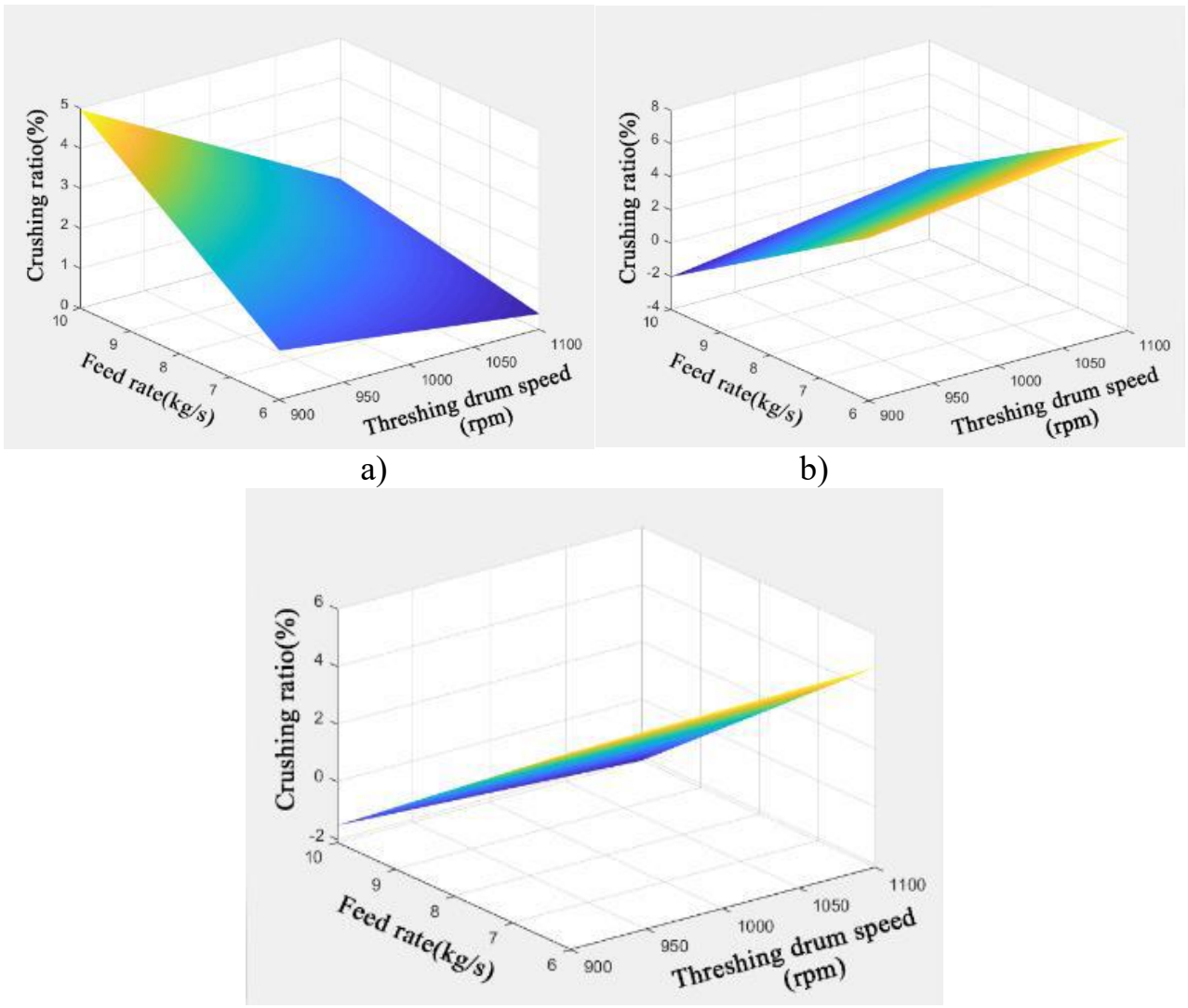

Fig. 1. The impact of selected key operating factors on the crushing rate: (a) Concave clearance = 10 mm; (b) Concave clearance = 15 mm; (c) Concave clearance = 20 mm.

It can be seen from the figures that when the concave clearance was 10 mm, the crushing rate increased as the feed rate increased, and when the speed of the threshing drum increases, the crushing rate decreases. And when the feed rate was low and the threshing drum speed was high, the crushing rate was at the lowest value and the crushing rate was at the maximum when the feeding amount was higher and the threshing drum speed was low. When the concave clearance was 15 mm or 20 mm, although the crushing rate decreased when the feed rate was higher, the crushing rate increased slightly when the speed of the threshing drum increased.

It can be seen from Fig. 1 that the relationship between the crushing rate and each parameter is not completely linear, so it is difficult to obtain the specific conditions of each parameter under the low crushing rate by solving the equation.

However, the Bayesian method can realize the reasoning of ―from effect to cause" and obtain the numerical value of each operation parameter that satisfies the low crushing rate.

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