nor Russian is a language that can be easily mastered by people from other countries. Under such double barriers, it is still difficult for China and Belarus to carry out cultural exchanges.

The second point is the food culture. Due to the reason of location and climate, China and Belarus have great differences in food culture. For example, the Chinese like to drink hot water or tea, while the Belarusians tend to drink mineral water, sparkling water or coffee. Besides, there are great differences between China and Belarus in entertainment culture. For example, only a small number of young people in China like party culture, while many people in Belarus like party culture.

3. Prospects of intercultural communication between China and Belarus.

Cultural exchange and collision will help accelerate the process of globalization. In the Internet era, now the whole world is using social apps, such as TikTok, which is very helpful for cultural exchanges between China and Belarus; in the era of we-media network, many Chinese and Belarusian Internet celebrities can express their views on social platforms and communicate with each other, helping them better understand each other's cultures. The development of transportation will also make it more convenient for students of the two countries to exchange and study in each other's country. Now and in the future, the number of overseas students will continue to increase, and there will be more and more cross-cultural communication between young people of the two countries, and I believe that the ties between the two countries will become tighter and tighter. Belarus is located at the junction of the two integration organizations of the Eurasian Economic Union and the European Union, and is an important node of the Silk Road Economic Belt initiative. [3] In this era of globalization, we hope that the two countries can strengthen cooperation not only in culture, but also in other aspects such as economy and make common progress!

References

1. Feng Lei. Comparison and Reflection on Vocal Music Teaching in China and Belarus[J]. Beauty and Times,2013,02(04):25-29.

2. Wang Xiqian. Research on the Development of Russian Language and Culture and Cross-cultural Communication[J]. People's Yangtze River,2023,11(03):0009.

3. Trade cooperation between China and Belarus on the Silk Road Economic Belt[J]. Northern Economy and Trade,2022,22(07):22-26.

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COMPARATIVE SIMULATION ANALYSIS BASED ON EDEM-RECURDYN COUPLING

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Summary. *In order to verify the effectiveness of the three-stage potato soil separation device, a comparative simulation should be carried out using the*

EDEM-Recurdyn simulation method. The results showed that the design of the three-stage potato soil separation unit could reduce damage to potato tubers.

The common potato harvester lifting chain has a large damage to the tuber, for this problem this paper designs a three-stage potato soil separation device[1]. First of all in SolidWorks for potato potato soil separation device lifting chain rod design and modelling (fig. 1, 2) shown. Harvesting speed is 1 m/s, lifting chain speed is 1.2 m/s, shaking wheel frequency is 7 HZ, amplitude 32 mm.

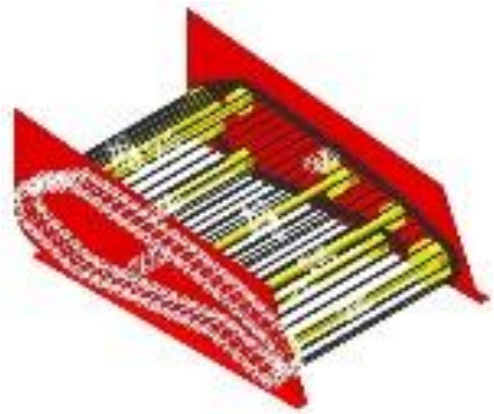

Figure 1 – Control group

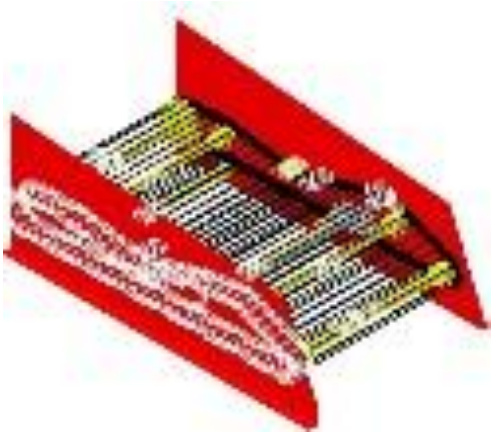

Figure 2 – Three-stage potato soil separation unit

Numerical analysis shows that the normal force is the main force experienced by the potato during mechanized harvesting. Simulation analysis reveals that the average normal force per step in the control group is 1.612 N, while the optimisation group measures 1.138 N, resulting in a significant 29.40 % reduction in normal force for the potato. This demonstrates that the design of the lifting chain allows for fast and efficient sieving while protecting the potato from soil damage, reducing overall damage (fig. 3, 4).

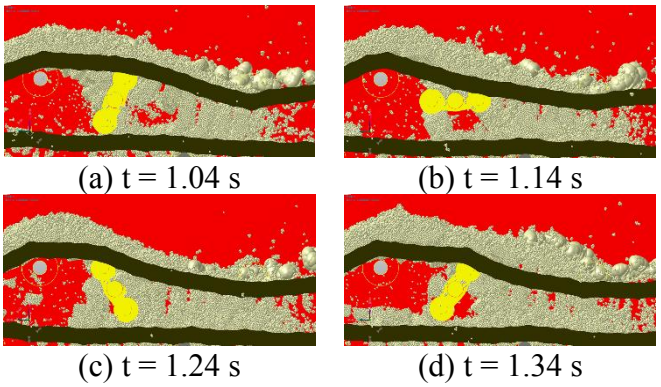

Figure – 3 Coupled simulation process

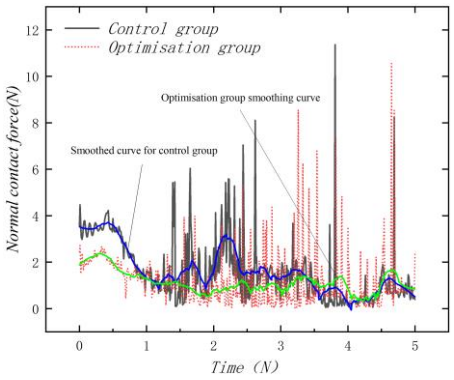

Figure – 4 Potato normal contact force graph

Simulation tests showed that the design of a three-stage potato soil separation device was effective in reducing damage to potato tubers. Numerical values indicate that the normal contact force can be reduced by 29.4 %.

References

1. Wang S H.[et al].Current situation and development trend of potato harvester //Forestry machinery and woodworking equipment. – 2023. – Vol.51. – P. 12–16.

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DEVELOPMENT STATUS OF POTATO HARVESTER IN CHINA

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Summary. *A late start has slowed the development of potato harvesters in China. Although research and development by companies such as MENOW and Hongzhu have raised the level of equipment in this field, problems remain.*

The delayed start of the potato harvesting machine in China has also led to a delay in the development of the potato harvesting handover lifting and conveying device. Several domestic institutions and enterprises are currently researching and enhancing this device. For example, Lin Jinxiang from Chiayi Agricultural Experiment and Analysis Institute in Taiwan Province of China developed the first potato harvester with a complete conveying and lifting mechanism, incorporating multiple conveyor chains. MENOW focuses on potato harvesting machinery research, particularly highlighting the 1710 B potato harvester's significant innovation in the secondary lifting and conveying device. To minimize potato damage during conveying, they reduced the slope of the first level of the potato and soil separation conveying mechanism and used lateral conveying to transport separated potatoes to the secondary lifting device. Qingdao Hongzhu Agricultural Machinery Co., Ltd. independently developed the 4U-170LH potato combine harvester, primarily comprising a frame, depth limiting wheel, potato soil separating device, soil removing device, conveying device, non-equal spacing potato collecting device, and hydraulic system. The harvester employs a two-stage conveying mechanism and utilizes a contracting conveying arm at the conveying end, positioning itself at the forefront of the conveying and lifting device field in China.