

New Chinese oilseed rape variety sets high-altitude yield record

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“Zhongyouqing No. 1” delivers 4,719.75 kg/ha in Qinghai, more than 66 per cent above the local average, highlighting new potential for spring oilseed rape in high-altitude regions



A new spring oilseed rape variety developed by a team led by Academician Wang Hanzhong at the Oil Crops Research Institute, Chinese Academy of Agricultural Sciences, has achieved a record mechanically harvested yield in a 6.67-hectare demonstration plot in China’s high-altitude agricultural regions.

The variety, “Zhongyouqing No. 1,” recorded a mechanically harvested yield of 4,719.75 kg/ha in Huangzhong District, Xining, Qinghai, during an on-site assessment by experts. The yield was more than 66.3 per cent higher than the local average, setting a new record for mechanically harvested spring oilseed rape in a 6.67-hectare demonstration plot in China’s high-altitude areas.

The result could strengthen the production base for spring oilseed rape in high-altitude regions, where shorter growing seasons and challenging agro-ecological conditions have traditionally constrained yield potential.

The variety was developed through a breeding framework that combines biotechnology with ecological breeding, bringing molecular tools closer to the specific environments in which oilseed rape is ultimately grown.

On the biotechnology side, the breeding programme integrates molecular marker-assisted selection, gene editing and microspore culture. According to the development team, the approach has reduced the workload involved in screening breeding lines from hundreds of millions to tens of thousands and shortened the breeding cycle from 8–10 years to about five years.

The second pillar is ecological breeding, based on the principle of “breeding where the crop is grown.” The team has established breeding outposts across major production ecoregions, allowing new lines to be selected and evaluated under the environmental conditions for which they are intended.

The approach has produced breakthroughs across four distinct oilseed rape production zones.

In the Yangtze River Basin, the team developed “Zhongyouza No. 501”, a winter oilseed rape variety that delivered a mechanically harvested yield of 5,665.2 kg/ha in a 6.67-hectare demonstration plot in Dongtai, Jiangsu, in 2025. The result set a new record for mechanically harvested winter oilseed rape yield in a 6.67-hectare demonstration plot in China.

For saline-alkali land in northern China, the team developed “Guoyanyou No. 1”, designed for strongly winter-hardy cultivation conditions. In 2026, the variety recorded a mechanically harvested yield of 4,251.75 kg/ha in Dongying, Shandong, setting a new record for oilseed rape yield on moderately saline-alkali land in the Bohai Rim.

A third variety, “Zhongyouzao No. 5,” targets fallow winter fields in southern China. It produced a mechanically harvested yield of 3,029.4 kg/ha in a 6.67-hectare demonstration plot in Xinfeng, Jiangxi, in 2026.

With a growth period of just 166 days, Zhongyouzao No. 5 also set a new record for high-yield oilseed rape within China’s three-crop “rice-rice-oil” production system.

Taken together, the results point to a breeding strategy built not around a single high-yield variety, but around matching varieties and breeding programmes to distinct production environments. From the high-altitude spring rape systems of Qinghai to the Yangtze River Basin, saline-alkali land in northern China and intensive rice-based systems in southern China, the programme is targeting yield gains across multiple ecological niches.