



Success Story

CoLk 14201 (IKSHU-10)

**A Landmark Contribution in Adding
to the Sweetness of Subtropical India**



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CoLk 14201 (*IKSHU-10*), an early maturing, high-sugar sugarcane variety has been released for the commercial cultivation in Uttar Pradesh, Bihar, Uttarakhand, Haryana, Punjab and Rajasthan. This is an improved variety developed at ICAR-Indian Sugarcane Research Institute (ICAR-ISRI), Lucknow from the segregating population of a GC of Co 0238 (wonder cane variety). This clone was accepted as CoLk 14201 for multi-location testing in the North West Zone of All India Coordinated Research Project (Sugarcane) and also under State Zonal Varietal Trials of Uttar Pradesh and Bihar. CoLk 14201 was released for commercial cultivation in Uttar Pradesh during October, 2020 and the Central Sub-Committee on Crop Standards, Notification and Release of Varieties of Agricultural Crops recommended for its notification and subsequently it was notified for the cultivation in Uttar Pradesh as per the Gazette of India Notification No. S.O. 8 (E) dated 03 January, 2022. Later on, it was also released for North West Zone through central release system and notified by the Gazette of India Notification No. S.O. 4222 (E) dated 25 September, 2023. Looking the performance of CoLk 14201 in the state varietal trials, the Government of Bihar had also approved it for the commercial cultivation in sugarcane growing districts of Bihar during 2024.



CoLk 14201 has exhibited excellent performance with a mean sucrose (%) in juice value of 18.11 % at harvest (Table 1). The mean CCS yield recorded was 11.39 t/ha and the mean cane yield was 91.34 t/ha. CoLk 14201 showed an improvement of 3.37 % for the cane yield and 4.59 % for sucrose over similar indices for the variety Co 0238. This sugarcane variety is erect with medium thick solid (no-pith) cane and having medium to tall plant height. It has high tillering capacity along with better ratooning potential when compared with Co 0238. This is an added advantage for sugarcane production system as subsequent ratoon crops thrive on this trait. Ratooning constitutes almost 50 % of the total sugarcane acreage and raised with reduced cost of production. This variety is resistant/moderately resistant to the prevalent races of red rot pathogen (Cf 08, Cf 09 and Cf 13). Resistance against the red rot disease in CoLk 14201 is now more crucial and important as the ruling variety Co 0238 has succumbed to this dreaded disease particularly in Uttar Pradesh and Bihar. CoLk 14201 had also shown Least Susceptible (LS) reactions to the major pests like, Top

borer, Stalk borer etc. which may reduce the pesticide load as cultivation of Co 0238 (susceptible to borers) requires frequent pesticide applications to control these borer-pests.

Table 1. Comparative performance of CoLk 14201 and Co 0238

Parameter	CoLk 14201	Co 0238
Cane yield (t/ha)	91.34	88.36
Commercial Cane Sugar yield (t/ha)	11.39	10.89
Sucrose % in juice	18.11	17.84
CCS %	12.53	12.34
Red rot resistance	Moderately Resistant	Highly Susceptible

During the last decade, the rapid adoption of wonder cane variety Co 0238 in wider acreage revolutionized sugarcane cultivation in sub-tropical India due to its high cane yield and quality potential. Within ten years, Co 0238 cultivation spread to nearly 80-85% of sugarcane fields in Uttar Pradesh and other sugarcane growing states of subtropical India.

However, excessive dependence on a single variety created a situation where nearly everyone was growing the same variety, a risky “monoculture” which concerns about genetic vulnerability, disease susceptibility and long-term sustainability of sugarcane production in the region resulting in knocking down of resistance against red rot pathogen. Owing to these worrisome issues, the adoption area under the variety reduced from 85% to around 29% in Uttar Pradesh during 2025–26. In light of these losses, both state and central agencies have pushed a phased replacement of Co 0238. In view of a strong need for equally productive, high quality and red rot resistant sugarcane early maturing variety, CoLk 14201 was developed. As a result of effective planning for seed availability, farmers' perseverance and the intrinsic potential of the variety CoLk 14201, it has emerged as a promising option for both farmers and the sugar industry. CoLk 14201 has gained rapid acceptance due to its vigorous growth, profuse tillering, erect and solid canes and excellent ratoon performance. Its early maturity enables sugar mills to commence crushing early with cane of good sucrose content, thereby improving operational efficiency during the initial phases of the crushing season. The variety has also demonstrated strong adaptability across diverse agro-climatic conditions, making it a reliable choice for sustainable sugarcane cultivation.



Field demonstrations and commercial cultivation have shown that CoLk 14201 delivers high cane yield along with desirable juice quality. Farmers value its dependable performance, improved stand establishment and the potential for profitable ratoon crops, which help reduce cultivation costs and enhance income. By lowering the need for frequent replanting, improving input-use efficiency and supporting higher returns per unit area, the variety offers clear economic benefits to growers. Reports from sugar mill command areas have further confirmed its promising performance under farmers' field conditions. The CoLk 14201 with its improved cane

yield, sugar content, excellent ratooning potential, resistance/ tolerance to the major diseases and insect pests is being adopted in Uttar Pradesh and Bihar and replacing Co 0238 in red rot affected areas. During the crop season 2025-26, CoLk 14201 has been cultivated in 1.72 lakh ha in Uttar Pradesh and 10322 ha in Bihar. Thus, the cultivation of CoLk 14201 at the present level of adoption and area coverage would generate an estimated Rs 6115 crore in gross revenue per annum for the farmers, highlighting the substantial economic impact of this high yielding sugarcane variety.

Table 2. Adoption pattern of CoLk 14201 in Uttar Pradesh during the last five years

Year	2021-22	2022-23	2023-24	2024-25	2025-26
Area (ha)	80	2,156	32,867	1,22,339	1,72,054

(Source: Government of Uttar Pradesh)

The success of CoLk 14201 reflects the importance of sustained research, effective varietal selection, and strong collaboration among sugarcane breeders, research institutions, extension agencies, sugar mills, and farmers for effective varietal replacement and sustaining the viability of sugar sector. By contributing to higher productivity, improved sugar recovery, reduced production costs, and greater farm profitability, CoLk 14201 (IKSHU-10) is playing an important role in strengthening the sustainability and competitiveness of the sugarcane sector in northern India.



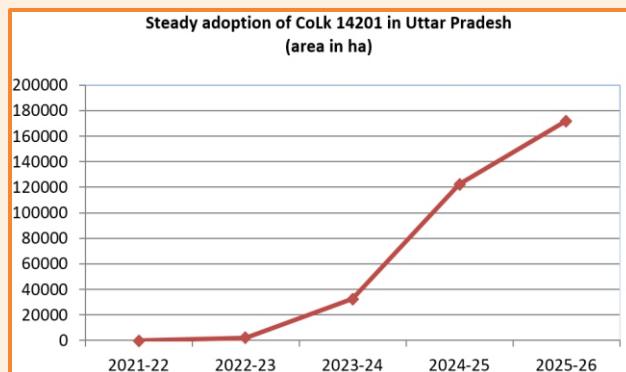
Success story on the ground

Shri Baljeet Singh is a progressive farmer of Village Bandukhera, District-Lakhimpur Kheri, (Command area of DSCL Unit, Ajbapur) who adopted the early maturing sugarcane variety CoLk 14201 (IKSHU-10) along with potato as an intercrop with autumn season planting of sugarcane. By integrating improved varietal technology with scientific crop management and an efficient intercropping system, he substantially enhanced land productivity, profitability, and resource-use efficiency.



CoLk 14201 along with potato intercropping. His field has become a demonstration site for showcasing the benefits of improved sugarcane varieties and profitable intercropping systems. The success highlights the potential of combining varietal improvement with scientific crop management to maximize productivity and farm income.

The outstanding performance of CoLk 14201 under potato intercropping demonstrates that integrated crop production systems can greatly enhance farmers' profitability. Shri Baljeet Singh's achievement of 2,600 quintals of cane per hectare over 6 hectares, coupled with additional income from potato, serves as an excellent example of sustainable and profitable sugarcane cultivation for the North India.



Outstanding achievement

Shri Baljeet Singh cultivated CoLk 14201 over 6 hectares at his farm and achieved an exceptional sugarcane yield of 2,600 quintals per hectare (260 t/ha). Simultaneously, potato intercropping generated an additional source of income without adversely affecting cane growth. The early harvest of potato provided timely cash returns, while the sugarcane crop maintained excellent growth, high millable cane population, and superior cane quality. The remarkable success of Shri Baljeet Singh has inspired many farmers in Lakhimpur Kheri to adopt

प्रगतिशील किसान सरदार बलजीत सिंह की रिकॉर्ड खेती का उपमहाप्रबंधक ने किया निरीक्षण



गन्ने की खेती देखते अधिकारी

पसगवां-खीरी (स्वतंत्र भारत) गेट रीजन की सभी जोन के किसानों का एक दल उप महाप्रबंधक (गन्ना) ए. सिद्धीकी की नेतृत्व में प्रगतिशील किसान सरदार बलजीत सिंह के बैरैया फार्म पर को 14201 प्रदर्शन प्लॉट का भ्रमण कर अच्छी उपज प्राप्त करने हेतु प्रशिक्षण लिया। यह खेत प्रदेश स्तर पर उपज प्रतियोगिता में 2600 कुन्तल प्रति हेक्टेयर से अधिक उपज प्राप्त का रिकॉर्ड कायम किया है। आज किसानों द्वारा 6 हेक्टेयर के इस प्लॉट को

धूम-धूम कर देखा गया। उसाह से लबरेज किसानों ने बहुत गंभीरता से इस तरह उपज प्राप्त करने की बारीकी से जाना और इस बसंतकालीन में इस तरह बुवाई करने का संकल्प लिया। इस मौके पर रीजनल हेड गेट रीजन अतिउल्लाह सिद्धीकी, रमेश चौधरी, जोनल इंचार्ज आदित्य सिंह, नीरज उज्जवल, अभिषेक सिंह, पंकज सिंह, चंद्रिका एवं गेट रीजन के सभी सर्कल सुपरवाइजर तथा लगभग 300 प्रगतिशील किसानों द्वारा प्रशिक्षण लिया गया।

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