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**Abstract:** A field experiment entitled “Effect of cultivars and phosphorus fertilization in Direct-seeded rice” was conducted during kharif 2016 at the Shankarpur research farm of ICAR- CRURRS, Hazaribag, Jharkhand. The soil of the experiment site was clay loam in texture, low in available N (153 kg/ha) and P (10.3 kg/ha) and high in available K (380 kg/ha) and medium in organic carbon (0.62%) content. The experiment was laid out in split plot design with three main plots and seven sub plots treatments replicated thrice. Three rice cultivars ‘Vandana’ ‘Anjali’ and ‘CR Dhan 40’ were included in main plots. However, seven different P fertilization practices were included in the sub plots where P was applied through SSP and microbial inoculants in various combinations. Results obtained from experiment showed that growth parameters were observed highest in rice cultivar ‘CR Dhan 40’ compared to ‘Anjali’ and ‘Vandana’. Likewise, P application of 90 kg P<sub>2</sub>O<sub>5</sub> through SSP recorded highest value for all the growth parameters which remained at par with P application of 60 kg P<sub>2</sub>O<sub>5</sub> through SSP+PSB+AM. Similar trend was observed for yield attributes of DSR. Besides, rice cultivar ‘CR Dhan 40’ produced highest grain (3.91 t/ha) and straw yield (6.17 t/ha) of DSR. Similarly, highest grain (4.25 t/ha) and straw yield (6.79 t/ha) was recorded with P application of 90 kg P<sub>2</sub>O<sub>5</sub> through SSP which remained at par with P application of 60 kg P<sub>2</sub>O<sub>5</sub> through SSP+PSB+AM. Almost 40% increment in grain yield of DSR was noticed with P fertilization with 90 kg P<sub>2</sub>O<sub>5</sub> through SSP compared to no P fertilization. Further, microbial inoculants also increased the yield of DSR when applied at the same dose solely through SSP. P fertilization along with microbial inoculants was found economically more viable then P fertilization solely through inorganic fertilization. Besides, efficiency of applied P was also recorded significantly higher wherever PSB and AM applied. It was concluded from the findings of the experiment that application of 60 kg P<sub>2</sub>O<sub>5</sub> applied through SSP along with phosphorus solubilising (PSB) and mobilising(AM) organisms in CR Dhan 40’ can enhance the DSR productivity and profitability in the eastern regions which has been selected for second green revolution in India.

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