ADAPTABILITY OF POTATO HYBRIDS WITH COMBINED RESISTANCE TO LATE BLIGHT AND POTATO CYST NEMATODES IN NILGIRI HILLS

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Late blight disease (*Phytophthora infestans*) and potato cyst nematodes (*Globodera pallida* and *Globodera rostochiensis*) are the two major plant protection problems of Nilgiri hills where potato can be grown throughout the year. With the onset of monsoons the late blight disease appears every year in an epidemic form in this area and causes severe yield losses. The cyst nematodes, on the other hand, are widely spread in all the major potato growing localities of Nilgiri hills and are being managed by adopting an integrated management practice. During 2001 and 2002 summer crop seasons, two advance hybrids viz., OS/93-D-204 and OS/94-L-956 were evaluated along with two standard controls in replicated field trials at the CPRS farm. The hybrid OS/93-D-204 yielded better than the best control cv. Kufri Giriraj during 2001 and 2002 whereas, the hybrid OS/94-L-956 yielded at par during 2002. Both these hybrids were field resistant to late blight and potato cyst nematodes. These two hybrids were further evaluated in replicated plots at Nanjanad and Theetukkal under farmer’s fields in comparison to standard potato cultivars Kufri Giriraj and Kufri Jyoti during 2003 and 2004. Both these advance hybrids were found to be yielding superior in total and marketable tuber yields than the best control cv. Kufri Giriraj. These studies indicate that the two advance hybrids will be suitable as future varieties for Nilgiris region as they are adapted to local conditions and posses resistance to both species of potato cyst nematodes and late blight disease.

PERFORMANCE OF RED SKINNED POTATO VARIETIES/HYBRIDS IN RAINFED CONDITION OF MEghALAYA

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Two red skinned hybrids (MP/92-56 and MS/92-2105 along with three red skinned (Kufri Kanchan, Kufri Lalima and Desiree) and two white skinned (Kufri Jyoti and Kufri Giriraj) commercial cultivars as checks were evaluated for growth parameters, yield and disease reaction against late blight at Shillong during 2003 and 2004. Germination percentages at 45 days after planting (DAP) ranged from 65.58 to 98.34% and 87.90 to 99.15% in 2003 and 2004, respectively. The germination percentage was also affected significantly by year and their interaction with genotypes (Y x V). The mean maximum germination percentage was recorded in cv. Kufri Lalima (98.53%) and minimum in Desiree (81.33%). There was a significant difference between genotypes for mean plant height and cv. Kufri Kanchan had maximum plant height (76.12 cm) at 75 DAP, where as cv. Kufri Jyoti had the minimum (58.25 cm). However, the effect of year and interaction between genotype and year on mean plant height was non-significant. Area under disease progress curve (AUDPC) indicated that there was significant difference among the genotypes and the years. The least (210.87) and highest (537.40) mean AUDPC values were recorded in cvs. Kufri Giriraj and Kufri Jyoti, respectively. Among the red skinned cultivars/hybrids, the least mean AUDPC value was recorded in cv. Kufri Kanchan (238.58) followed by the processing hybrid MP/92-56 (315.44) and cv. Kufri Lalima (385.59). However, the yields of the red skinned varieties were not positively correlated with their blight resistance (AUDPC). Mean total tuber yield pooled over years indicated that white skinned cultivars Kufri Giriraj (213.91 q/ha) and Kufri Jyoti (165.21 q/ha) performed significantly best. Among the red skinned cultivars/hybrids cv. Kufri Lalima (135.55 q/ha) was found to be significantly superior over Desiree (132.90 q/ha) and cv. Kufri Kanchan (77.05 q/ha). However, there was a significant difference in the total tuber yield obtained from different genotypes during both the years and their interactions.