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SUNFLOWER HYBRIDS RESISTANT TO RED RIVER RACES OF DOWNY MILDEW

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Resistance to the downy mildew Red River races 2 and 3 was identified in several sunflower breeding lines. Open pollinated varieties Charata, Progress and Novinka were used in multiple crosses to develop the resistant lines. Lines derived from Charata and Progress were resistant only to race 3 and exhibited the same level of resistance in F_1 hybrid combinations with susceptible lines. Novinka line crosses possessed both the Pl_2 and Pl_5 genes which control resistance to races 2 and 3 respectively. Two distinct genotypes having Pl_2 and Pl_5 genes were identified. Inbred lines of the genotype number 1 when crossed with suceptible lines produced F_1 hybrids that were consistently resistant to races 2 and 3. Resistance to both races appeared to be dominant. Lines of the genotype number 2 having Pl_2 and Pl_5 genes when crossed with suceptible lines produced F_1 hybrids that were resistant only to race 2 and segregating for race 3. Segregation obtained for race 3 fit 1:1 ratio. When the same lines of genotype number 2 were crossed with lines having Pl_2 gene from HA-61 their F_1 hybrids were resistant to both races 2 and 3. Hybrids utilizing both genotypes and resistant to races 2 and 3 were agronomically satisfactory.