A. Smith', C.D. Yonis', R.O. Wilson', and E.L. Palm

HALMER, PETER, Germain's (UK) Ltd., Hansa Road, Kings Lynn, Norfolk PE30 4LG, UK. - <u>Priming treatments for sugar beet seed to advance germination and field</u> <u>emergence</u>.

Two priming procedures have been developed to maximise the emergence potential of sugar beet seed, and thus help to ensure uniform crop establishment under a wider range of field conditions and drilling dates. Steeping of seed, typically for up to 12 hours using water (or thiram suspension) at 25°C, has been successfully established now for 5 years by Germain's/Seed Systems in Europe and North America, as a standard commercial treatment for pelleted sugar beet. Responses to steeping include: (1) a speeding of laboratory germination and field emergence (typically by 1-2 days); (2) an increase in final establishment, on average by 3.5% in the UK for Recently, a more extended priming advancement treatment the 1984-1986 period. (PAT) has been developed by Germain's/Seed Systems, based on initial research carried out at Brooms Barn Experimental Station in the UK: this treatment is now undergoing commercial-scale trials. In the PAT process, each bulk is steeped and then stored for several days at 25°C at a precalibrated moisture content, before being pelleted. Responses to PAT, compared to those due to steeping, include: (1) a greater uniformity and further speeding of field emergence, by up to 9 days from earliest drilling dates; (2) an increased germination and emergence capacity in cold-wet conditions. Increased emergence speed in *PAT*-treated seed is associated with an increase in recoverable sugar yield of 0.5-1.0t/ha in UK trials. Responses are retained for 3 years in pellets stored under normal conditions. desirable, parhaps necessary, to eliminate the esculating input clists of axoess seed an

Iniming Almost all of the British sugarbert only is planted to wood (Gatometron, 1989) as is most of the Western European wrop. The monivation for planting to stand in Europe has been to reduce production costs and the magnifiability of labor for thinning.

Although planting sugarbeets to stand in the United States is attractive and an riverses goal at will require prower education, charges in cultural practicus, and peridips new production technology. It will not be as simple as changing the seed spacing adjustment of the planter. Higher and more consistent plant energetice must be achieved. Research in England on planting to stand has shown that at least 70 percent of teeds planted and develop into harvestable plants so that potential yield is not lost to gaps in the plant caropy (Inggard, 1979). If this applies root he United States, then we need to strive for a minimum energetice of no less than 70 percent for plant to stand to provide yields comparate to function

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