

WETZSTEIN, HAZEL Y.^{1*}, and CHRIS H. BORNMAN², ¹University of Georgia, Department of Horticulture, Athens, GA 30602, USA and ²Hilleshög AB, Box 302, S-261 23 Landskrona, Sweden. - Floral organogenesis in fertile and male sterile sugar beet.

Detailed accounts of the process of floral organogenesis in sugar beet are lacking. The objective of this study was to describe floral development using light and scanning electron microscopy. Comparisons were made of fertile and cytoplasmically male sterile genotypes. Inflorescences in sugar beet are paniculate spikes. Following vernalization, there is a broad flattening of the apex and the initiation of bract primordia. Flowers develop acropetally in an indeterminate fashion and laterally flank the inflorescence axis. Flowers are perfect, apetalous, bracted, with 5 sepals, 5 stamens and usually 3 carpels. Flowering is protandrous, i.e., pollen maturity and dispersal precedes stigma receptivity. Pollen is rounded and multiporate. Stigmas enlarge and reflex; stigmatic surface cells expand from short papillate cells to elongate, filiform configurations. Early floral organogenesis is similar in fertile and male sterile types. However, in sterile flowers a plasmodial tapetum forms and there is a general degeneration of anther components. Microspore wall formation is defective. Anthers appear collapsed in the mature flower.