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: Plantago lanceolata; Lotus corniculatus; Germplasm; Pollen shed; Kernel

I

Plants typically face crowding stress as plant density rises as a result a ect sweet corn yield are of agronomic importance. e majority of crowding stress transcriptional studies was done in the early or late vegetative stages. However, owering is also one of the growth stages that is most vulnerable to stress, particularly during the times when silk growth, pollination, and kernel setting take place. By establishing a link between the stress response during the vegetative stage (before owering) and the later growth stage, transcriptional alterations during blooming will enhance our comprehension of the resistance to crowding stress (at owering) [ ]. Additionally, the crucial "source" of assimilate that in uences stressed-out kernel production is the ear leaf. Studies revealed that photosynthesis on the ve or six leaves close to and above the ear has a signi cant impact on the accumulation of photosynthate in the kernel. In order to 1) investigate the phenotypic and transcriptional response of sweet corn hybrids under various plant densities, 2) compare the mechanisms of hybrid crowding stress response, and 3) identify potential biological mechanisms involved in crowding stress response, research was done on sweet corn [10].

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Our ndings on between-type competition reveal that in both species, cultivars are at least brie y in competition with wilds. is is because in the rst growing season, cultivars were tter than wilds due to their higher allocation of vegetative and generative biomass. is outcome is consistent with tall grass prairie restoration ndings in North America. By the end of the second season of our trial, the cultivars advantage had, however, vanished [11]. As the lower biomass production in P. lanceolata cultivars and the high mortality in the L. corniculatus cultivar were unrelated to competition, the reduced tness in cultivars in our experiment was most likely caused by the exceptional long and cold winter conditions in 2010/2011 rather than by competition. Up to the end of the experiment, the wilds in our study fared better with the local climate than their cultivar counterparts. We made the assumption that changes in trade-o s between plant features by cultivation in a previous study. Due to changes in resource allocation, selection for big biomass output may have also entailed selection against the capacity to withstand severe environmental circumstances in this instance. Cultivars could not be well adapted to severe environmental conditions like frost as a result. Lower resistance to pest infestation may also be a consequence of such trade-o s [12]. Cultivars can only be superior in a competitive sense if they are not exposed to severe environmental variables.

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In contrast to our assumptions the tness of wilds in competition with cultivars and hybrids (between-type competition) was not inferior to the tness of wilds in rivalry with other wilds. is result is seen by us as a signi cant "competitive reaction". Regardless of whether they are of the same plant kind, the wilds are probably capable of withstanding resource decrease by rival neighbors over the near run.

However, greater biomass allocation in cultivars in competition with wilds than in cultivars in competition with cultivars also suggests potential competitive superiority of cultivars over their wild counterparts at least in the rst growing season as detected in between-type competition trials (Hypothesis 1). (Within-type competition). As a result, in the rst growing season, there is less between-type competition with wilds than there is within-type competition for cultivars. When compared to competition with hybrids, the hybrids propensity for competitive superiority over their wild counterparts in our study was also strongly accompanied by greater tness in competition with wild counterparts (between-type competition). As a result, in both growing seasons, hybrids experience less between-type competition with wilds than within-type competition.

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To increase sweet corn productivity and pro tability, it is necessary to take advantage of genetic variability in resistance to crowding stress. Increas10(greater)pncce a seetative s2⊠.6 18 Tm[(C)-20(o)10(ncl)