Supplementary Table 1 | A summary of representative researches on drought-tolerance in maize

Purpose	Treatment methods	Treatment period	Maize materials	Selection criteria	References
Identifying drought-tolerance varieties	Greenhouse: withholding water for 17 days and recovering for five days	8-leaf stage	Nine inbred lines and one hybrid line	Drought resistance, recovery and adaptability	Chen et al., 2016
	Greenhouse and field: withholding soil water content of the soil at 15%–16% for 16 days	10-leaf stage	Drought-tolerance transgenic lines (TsVP and betA) and their wild-type; hybrid line of TsVP and betA	Several agronomic traits, e.g., anthesis-silking interval, yield	Wei et al., 2011
Exploring new drought-tolerance indicators	Greenhouse: withholding water until measure; Field: using rainout shelters and withholding water	Greenhouse: 5-day old seedlings; Field: 35-40-day old seedlings	Recombinant inbred lines	Large root cortical cells, small file number of cortical cells, and few but long lateral roots were related high yields. Other priority traits included rooting depth, acquisition of deep soil water, plant water status, leaf photosynthesis, and growth rate etc.	Chimungu et al., 2014a; Chimungu et al.,2014b; Zhan et al., 2015
	Greenhouse: without additional watering until the 4^{th} leaf was fully expanded	4-leaf stage	Inbred lines and hybrids, differing in drought tolerance	The agronomic traits related to drought resistance were analyzed, e.g., leaf elongation rate, leaf width	Avramova et al., 2016
	Field: withholding irrigation 2-4 weeks	One month after sowing	Hybrids	Hybrids with lower kernel $\Delta^{18}O$ under well-watered and intermediate water stress had higher yields	Cabrera-Bosquet et al., 2009
Screening drought-related molecular markers	Field: withholding irrigation before anthesis	Flowering stage	Inbred lines	Molecular markers related to agronomic traits, e.g., plant height, leaf senescence, chlorophyll content, root capacitance, yield	Messmer et al., 2009; Almeida et al., 2014; Thirunavukkarasu et al., 2014; Xu et al., 2014; Li et al., 2016;
			Inbred lines and their offspring from crossing with a common inbred line	Molecular markers related to metabolic and physiological traits (e.g., abscisic acid, proline, total sugar, dry mass, leaf weight) and field traits (e.g., grain yield, anthesis-silking interval)	Xue et al., 2013; Zhang et al., 2016

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