Competitive wheat (*Triticum aestivum*) cultivars: A potential tool for managing herbicide resistant weeds

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Summary Competitive wheat cultivars have strong potential to reduce yield losses due to weeds; however, yield has always been preferred over competitiveness by breeders or farmers while choosing cultivars. The evolution and rapid expansion of herbicide-resistant weeds, and limited new herbicide chemistry availability, has renewed interest in harnessing competitive potential of wheat cultivars for managing such weeds. We discussed the recent understanding of the crop traits to explain variation in competitive wheat cultivars and the concept of suppression and tolerance related to weeds associated with wheat. The cumulative effects of allelopathy and competition determine the weed suppression potential of a given cultivar. Weak competitive ability of resistant weeds over susceptible weeds has been reported in previous findings; which provides opportunity to reduce the menace of resistant weeds through use of competitive cultivars. Weed research in the last decade although provide great foundation for breeding of competitive cultivars, the genetic variability in wheat for competitiveness is still limited. Further research is required to define the nature of relationships between cultivar traits and agronomic practices (like planting density, sowing rate, row orientation and sowing pattern) for managing diverse weed flora specific to a region or seasons. Such studies may help in reducing herbicide doses or managing herbicide resistance through use of herbicide in conjunction with competitive cultivars. This would be a step forward for sustained wheat productivity as well as human and ecosystem health.

Keywords Suppression, allelopathy, weed management, herbicide resistance, wheat, competitive cultivars.