

Cultivar Development ALA 1.2

Changes in organizational
infrastructure to facilitate 21st
century cultivar development

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Based on papers by Moose and Mumm (2008) and Eathington et al. (2007), what organizational features and approaches characterize modern plant breeding? How are these the same or different compared to 15 years ago? What requirements are needed for implementation? What results are documented?

Infrastructure/Organization	Approaches	Requirements	Changes/Results

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Infrastructure/Organization	Approaches	Requirements	Changes/Results
<ul style="list-style-type: none"> • More division of labor (4 groups: breeding technology, line development, commercial breeding and product deployment) • Centralized database/integrated system • Tracking (reduce errors) • High throughput phenotyping • Interdisciplinary • Research collaboration involving public and private 	<ul style="list-style-type: none"> • Using molecular markers • Using tools 	<ul style="list-style-type: none"> • Breeder are more tech savvy • Better quality data • Uniformity in data nomenclature • Broadly educated and appropriately prepared workforce 	<ul style="list-style-type: none"> • 7 fold increase in data/data analysis • 40 fold increase in marker data points • 80% increase in trial size • 50 fold increase in QTL association database • More than 2 times genetic gain • Making gain in early generations of selection • \$34 billion (USD) increase to farmer's profit