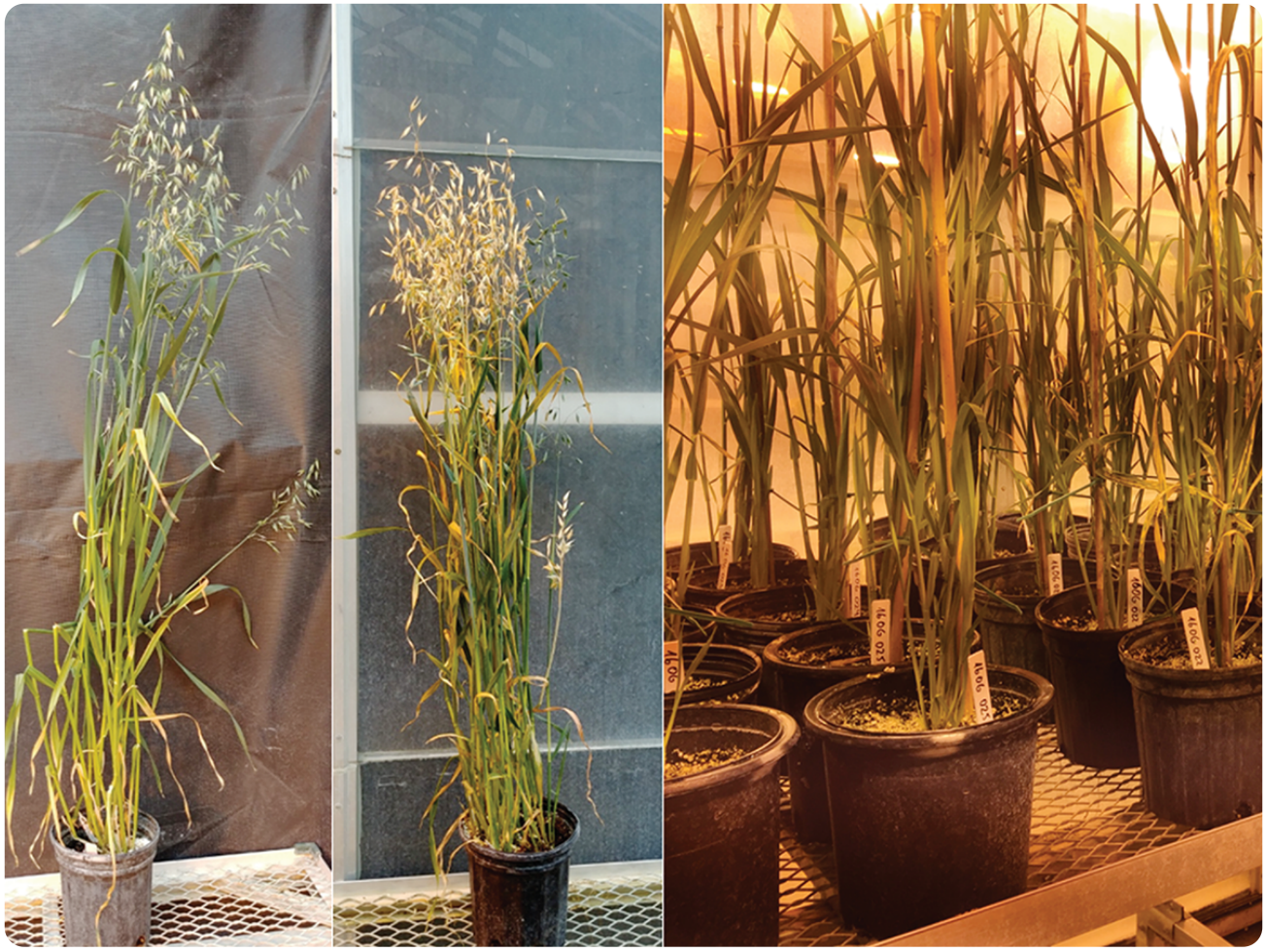
Science Societies

Speed breeding and early harvest shortens oat cycle

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Oat plants growing at a University of Wisconsin–Madison greenhouse under speed-breeding system evaluation. Left: cultivar Antigo at 53 days after planting in the normal (left) and speed-breeding (right) system. Right: night picture of oat plants growing in

greenhouse under the speed-breeding system. Photos courtesy of Lucia Gutiérrez.

Researchers use speed-breeding strategies to reduce the time required to complete one generation of inbreeding. These strategies include increasing temperature, photoperiod, and micronutrients while growing crops in controlled environments. In some cereals, harvesting immature seeds can further reduce the time required to grow a generation of the crop; however, some species have germination problems when breeders harvest them early.

New research in *Crop Science* evaluates whether the speed-breeding system could be effectively applied to oat and how early seeds could be harvested to maintain an acceptable germination level for breeding purposes.

The speed-breeding system shortened the oat-growing cycle. Early harvest of immature seed at 21 days after flowering produced viable seeds in oat. This means that five generations per year can be grown with the speed-breeding system and early harvest instead of the typical three. The system is especially suited for a single-seed descent program (with no selection during inbreeding) because a genotype by system interaction was found. Therefore, the combination of a speed-breeding growing system and early harvest of panicles would be a simple and efficient tool to accelerate plant-breeding progress in oat.

Dig deeper

González-Barrios, P., Bhatta, M., Halley, M., Sandro, P., & Gutiérrez, L. (2020). Speed breeding and early panicle harvest accelerates oat (*Avena sativa* L.) breeding cycles. *Crop Science*. **https://doi.org/10.1002/csc2.20269** (in press).

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