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Engineers calculate ag's 15 greatest innovations



By WILLIE VOGT



IF you had to go through the past 100 years and pick out some top agricultural engineering achievements, could you do it? That was the challenge that the American Society of Agricultural and Biological Engineers accepted as part of their 100-year anniversary celebration. The resulting list offers a glimpse into just how far agriculture has come. They were able to narrow the list to 15 items, which I'll list in reverse order to go for the "big buildup" to the No. 1 pick.

15 Refrigerated on-farm milk storage. While pasteurization did a lot to get rid of the bugs and bad things in raw milk before selling it to the public, keeping milk fresher and improving shelf life still starts on the farm. This innovation, which no dairy producer today would live without, is a good start for an innovation list.

14 ASAE/ASABE standards procedure. Hydraulic interfaces, rollover protective structure specifications, electronic requirements for specific connections: These are just some of the items farmers

Key Points

- For 100 years, innovations have boosted ag efficiency.
- Removing the need for labor was a driving force.
- Ingenuity turned mundane tasks into mechanical marvels.

take for granted, but thanks to the association's work, the industry has standards for a wide variety of topic areas. Those standards continue to evolve even today.

13 Drip/trickle irrigation for high efficiency. Improving water use could be one of the greatest challenges facing agriculture in the 21st century. Drip irrigation is a key part of maximizing water use for food production.

12 Biofuels feedstock and processing technology. Boosting the volume of renewable fuels available from a

bushel of a crop, or a pound of biomass, has been a boon to what has become a hot-topic industry.

11 Seeding technology (all grains). Mechanized seeding has helped enhance productivity and improve yields for growers. Consistent planting depth and good plant and row spacing provides just the right environment for seed emergence and growth.

10 Farm safety improvements. Agriculture remains a dangerous profession, but often because of older equipment without proper shielding. ASABE members have been at the forefront of devising ways to make mechanized equipment safer, while maintaining productivity.

9 Precision-farming GPS. We're close to ending the use of the term "precision farming" as site-specific ag-

riculture becomes the norm. This innovation allows farmers to know their land better and enhance financial returns.

8 Center-pivot irrigation. Enhancing water use is a critical challenge. Center-pivot irrigation will be an important part of that effort, especially with low-pressure systems that improve water use and cut energy requirements.

7 Ag electronics. This innovation covers its fair share of items from communication to monitors, and from greenhouse controls to sorters and inspection equipment. The overall movement of electronic technology into agriculture remains a hot pick with plenty of potential for the future.

6 Conservation tillage. Saving soil and preserving soil health are hot topics, and the engineering that surrounds this effort remains important today. The tillage tools and attachments engineers have designed help create a healthy seedbed to get a crop off to the right start.

5 Cotton picker. The idea of mechanically picking cotton was a top engineering feat. It also brought changes

to Southern agriculture. At the ASABE event, Case IH even had an original-model production picker on hand for show visitors.

4 Milking machine. Like the cotton picker, the milking machine took away a lot of the "drudgery" of farm work and enhanced productivity, too. Today's automated milking systems are moving to the next step — total robotic milkers. These high-tech systems offer quality cow care with even less labor.

3 Self-propelled combine for grain. Threshers were great machines, but the ultimate all-in-one combine harvester has improved productivity and allowed today's farmers to strive for profitability as they work to cover more acres in a day.

2 Rural electrification. How do you measure the value of power on demand? Electricity and the national movement to electrify the country moved farmers into the 20th century. Younger folks (including myself) don't really appreciate the efforts and challenges it took to bring reliable power to the country.

1 And the No. 1 achievement: the ag tractor. Replacing the horse with mechanical horsepower (and in today's world, hundreds of horses) did more to help agriculture move forward than most other achievements. The diaspora of farm families to the city in the 1930s would not have been possible if tractors had not been available.

NEW-TECH TOOL: Handpicking cotton fell by the wayside in the 1940s when Case IH's predecessor, International Harvester, commercialized the cotton picker.

■ If you think ASABE missed a few innovations, or you don't agree with their order of importance, let me know. Just send an e-mail to wvogt@farmprogress.com.



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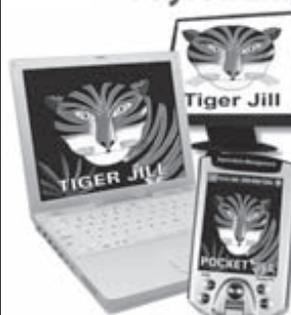
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