

## **FUTURE GENERATION ENERGY CROPS**

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Although cropping systems in the Midwest that emphasize corn (*Zea mays*), soybean (*Glycine max*), and wheat (*Triticum aestivum*) are some of the most highly productive in the US, the growing lack of agricultural diversity in this region threatens to jeopardize long-term sustainability. Added to this concern is the increasing demand placed on these highly valued food-use crops to now additionally provide energy. This has sparked considerable debate over the ethical, economical, and efficient use of traditional crops historically developed for food, feed, and fiber as a bioenergy source. A potential solution to these concerns is integrating new/alternative crops specifically developed for bioenergy and other bioproducts into current farming systems. For instance, cuphea (*Cuphea* spp.), which grows well in the north central US is a new oilseed crop whose unique oil properties make it well suited to newly developed processes to convert vegetable oils to aircraft fuel and exceptional quality engine lubricants. Several members of the mustard family including camelina (*Camelina sativa*), pennycress (*Thlaspi arvense*), and crambe (*Crambe abyssinica*) contain high seed oil contents (40 to 50%) and may serve as cheaply produced alternative feedstock for biodiesel. ARS researchers in Morris, Minnesota are working to identify new and alternative energy and bioproduct crops best adapted to Midwest agriculture, and develop management strategies for their efficient production. The intent is to develop new crops and cropping strategies that allow farmers to integrate both energy and food crops into their cropping systems. This technology will offer farmers new and improved economic and environmental benefits, while diversifying their crop rotations.

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