

TECHNOLOGY OPPORTUNITY

Small-seeded black fababean for cover crop use (14-24SB)

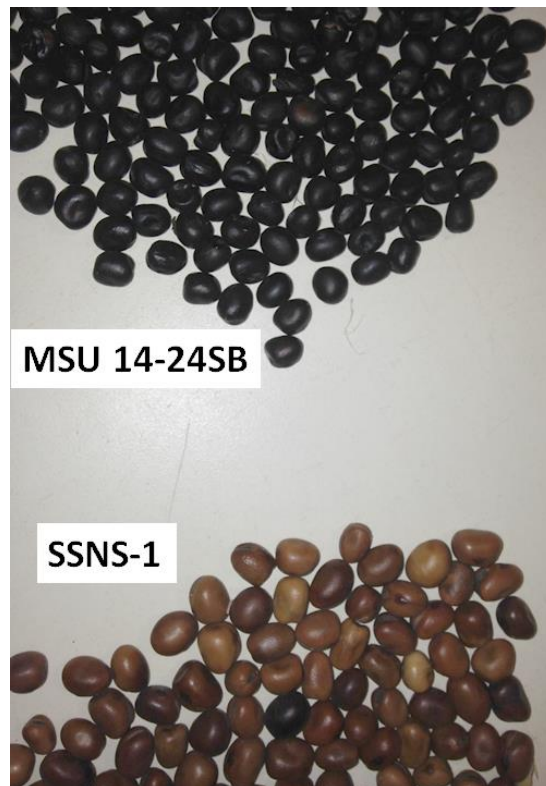
Montana State University seeks a commercial partner to release, produce, and distribute the first small-seeded, dark-coated fababean for the cover crop market.

Description:

Legumes are commonly included in cover crop mixes for their nitrogen fixing capabilities. Fababean (*Vicia faba var. minor*) is known to be one of best nitrogen fixers among annual plants.

Fababean is a desirable alternative to vetches. Hairy vetch (*Vicia villosa*) produces viney biomass that can be problematic for equipment such as seeders. Common vetch (*Vicia sativa L*) is not only viney, but can contaminate subsequent lentil crops.

Use of pea and lentil in cover crop mixtures counts towards the crop insurance rotational restrictions for those commonly grown crops. Thus, a legume not commonly grown for grain harvest is a more attractive choice for use in cover crop mixtures.



MSU's new 14-24SB fababean is shown next to [University of Saskatchewan CDC's small fababean variety SSNS-1](#). Seeds of 14-24SB are 2/3 the weight of SSNS-1.



Fababean plant from same phenotypic selection as 14-24SB at biomass harvest, June 24, 2016.

Photo credit: Susan Tallman, NRCS

Fababean stems provide vertical structure within a cover crop canopy, unlike most other cool-season annual legumes, which could provide additional benefits in trapping snow and attracting wildlife.

While fababeans have numerous advantages as a cover crop, conventional fababean produces seeds that are large and/or susceptible to seedling diseases, making seed comparatively expensive to include in cover crop mixes. To solve these problems, [Professor Perry Miller at Montana State University](#) developed the 14-24SB fababean: the first small-seeded, dark-coated fababean for the cover crop seed market.

During seed increase under limited irrigation (Bozeman Montana), 14-24SB plant height varied from 18 – 28”, but was quite uniform within an area, with <1% ‘tall’ plants were observed. Variation is therefore believed to be a factor of local environmental conditions. Seed size is approximately 220 mg and uniformly dark.

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Benefits:

- Fababean is a very strong nitrogen fixer
- Small seed size (~220mg), so more economical to produce seed, and easier to plant
- Fababean does not interfere with common crop rotation protocols (unlike pea and lentil)
- No viney biomass to impair seeding equipment, as is common with vetches
- Dark bean is expected to have high tannin to better resist soil pathogens

Opportunity:

- Although the 14-24B fababean germplasm has favorable properties and plants are fairly uniform, variety development is not complete. MSU is seeking to exclusively license this to a commercial partner who can:
 - complete variety development;
 - register the variety (note that in some states, including Montana and North Dakota, fababean seed may not be sold except by variety name, so this step is legally required);
 - apply for PVP protection;
 - produce and maintain Breeder and Foundation seed stocks for ongoing seed production;
 - produce and distribute seed to commercial markets.
- A limited quantity of 14-24SB fababean germplasm is currently available for qualified potential commercialization partners to test in Spring of 2018. [Seed is high purity with 94% germination rate.](#)
- MSU will solicit licensing proposals in August 2018, with the expectation that an exclusive licensing agreement will be concluded by October 2018.

FAQ (Frequently Asked Questions) available online at:
http://tto.montana.edu/tech/techopps/FAQ_MPR-2018-FABA.pdf

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