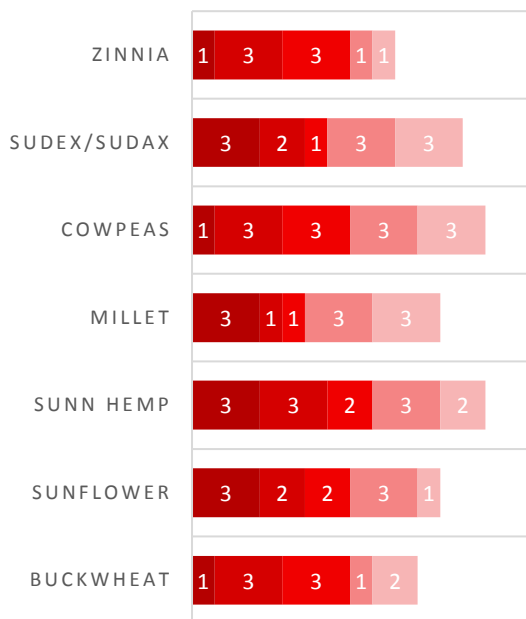


Growing Plants for Biodiversity on the Farm

SPECIES TO CONSIDER FOR WARM-SEASON PLANTING

RATINGS BY PURPOSE

- Biomass
- Insectary Habitat
- Nectar/Pollen
- Wildlife
- Weed Suppression



Ratings based on scale of 1(Min) to 3 (Max)

GROWING BIODIVERSITY WITH WARM-SEASON CROPS

The idea of growing a crop with the purpose of benefiting others is nothing new to agriculture. Cover cropping, nurse crops, and interactions between neighboring plants has long been used and studied to improve agricultural and natural interactions.

Modern production systems often do not provide much opportunity for these practices due to efficiencies of scale and maximization of cropland. However, precision agriculture and modern, larger equipment have allowed for more marginal space along field edges, steep banks, around objects (power poles), and alongside roadways. Planting these non-cropped spaces to a diverse species of quick-growing plants has the potential to greatly improve natural relationships between crops and the environment. This relationship is referred to as agro-ecology.

Planting a mixture of warm-season species as diverse plant “banks” is intended to provide: **habitat for wildlife** and **beneficial insects**, flowers for **pollinators**, biomass for **soil structure**, and **weed suppression** through good leaf canopy cover during a season of intense cropping. This is the focus of this factsheet, to improve the biodiversity of a farm of any scale and production system through simple, summer plantings of a mixed species of plants.



A biodiverse planting alongside sweetcorn and vegetable crops provides habitat and insectary benefits to the farm.



Agro-ecology: a dynamic relationship of the mineral, biological, weather, and human resources involved in producing crops or livestock.¹

ESTABLISHMENTS CONSIDERATIONS

- Identify marginal space around field edges, entrances, ditch edges, and obstacles to plant.
- Drill/Sow seed as early in summer as possible or between any crop from May to August.
- Drilling at an average depth of 1" will ensure the best germination even in short periods of drought.
- Use a mix of 4-5 species minimum to guarantee diversity, flower succession, and good cover.
- Limit the use of pesticides near the plantings to encourage diverse populations of insects, wildlife, and plants.
- Keep good records and make regular observations to improve the plantings in order to meet your needs.



Biodiversity plot drilled in June in a narrow strip non-cropped due to limited access with larger equipment.

SELECTING THE RIGHT SPECIES

- ✓ Fast growth
- ✓ Heat & Drought Tolerance
- ✓ Good Cover
- ✓ Insectary Potential
- ✓ Biomass Potential
- ✓ Nutrient Mining/Nitrogen Fixation
- ✓ Pest Suppression
- ✓ Costs

Biodiverse plantings have an overall higher predator species richness with higher activity against pests than monocultures³

SAMPLE SEED MIX FOR WARM- SEASON PLANTING²

Buckwheat	15 lbs per acre
Sunflower	6 lbs per acre
Cowpea	40 lbs per acre
Sunn Hemp	6 lbs per acre
Millet	3 lbs per acre
TOTAL	70 lbs per acre



A high prevalence of Japanese Beetle pests observed feeding on Sunn Hemp. Potential for "trap cropping" and allow natural enemies to reduce crop pest pressure.

Author:

Dustin Adcock, NC State Extension, Stanly County
Published January 2019

Get more information and stay updated with "Growing Plants for Biodiversity on the Farm" research project at go.ncsu.edu/growingbiodiversity

References

- 1 Managing Cover Crops Profitably, 3rd Edition. 2007. Sustainable Agriculture Research and Education (SARE) program, Handbook Series 9. College Park, MD.
- 2 (Adapted from) Walton, N. 2009 *Evaluation of Supplemental Flowering Plant Strips for Sustainable Enhancement of Beneficial Insects*. Project funded by USDA SARE. www.sare.org/project-reports/project_number/GNC07-086
- 3 Staudacher K, Rennstam Rubbmark O, Birkhofer K, et al. *Habitat heterogeneity induces rapid changes in the feeding behavior of generalist arthropod predators*. *Funct Ecol*. 2018;32:809-819. <https://doi.org/10.1111/1365-2435.13028>