

MB Sunflower Crop Report



"Proper Identification of Sunflower Pests is essential as we head into flowering. Recently, there has been confusion with Lygus Bug and Sunflower Rust."

Report 8 Monday, July 19, 2010

Staging R-1 to R-3. See Page 2 for Stages of Sunflower Development. A few later planted fields still in vegetative stages but looking good. On average, sunflower hybrids will begin to flower approx. 73 days from planting. Staging last week indicated +/- 3 days from the average. To get an idea of when you can expect your sunflower fields to begin flowering and ensure you get in a good field scout before hand, use this guide;

Days from R-1 to R-5.1	27
Days from R-2 to R-5.1	12
Days from R-3 to R-5.1	6
Days from R-4 to R-5.1	2

Insects Lygus Bug was found in the majority of fields surveyed last week. Half of the fields were below threshold, with the other half near or at threshold (ranging from 1/9 to 1/15). The economic or action threshold for Lygus bug is *1 Adult Lygus bug per 9 sunflower heads*. Fig. 2 shows the size and color difference between Lygus Bug and Ragweed Plant bug.

The first week of Banded Sunflower Moth (BSM) trap counts were very high relative to last year. BSM egg sampling to determine economic injury level (EIL) should be done at R-3 which is the preferred crop stage for egg laying. Sampling directions and how to calculate EIL can be found at; <http://www.ag.ndsu.edu/pubs/plantsci/pests/e823.pdf>

Disease Make sure that you are correctly diagnosing the economical stage of Sunflower rust. Misidentification can lead to unnecessary fungicide applications and wasted dollars. Rust prevalence and severity is relatively low compared to previous years. If economical stages are present in your field, the best thing to do is monitor the % infection every few days (new pustules will show up) and make the decision at R-4 if a fungicide application will be necessary at early flower. A fungicide application has been shown to be economical when rust is present at 1-2% infection on middle leaves and 0-1% on upper leaves. In fields where early stages were found in June, disease progression has been slow and the brown pustules have not shown up in all fields yet.

Limiting Factors None



Fig. 1 All that is left of a Sunflower field SW of Morden after a severe hail storm on July 12.



Fig 2. Top: Ragweed Plant Bug (not known to be economical) Bottom: Lygus Bug

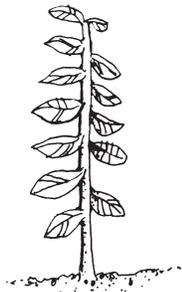


Fig 3. Left: Rust Pustules. Right: Necrotic (dead tissue) spots.

Vegetative Stages



True leaf — 4 cm



V-12



V-E



V-2



V-4

Stages of Sunflower Development

A.A. Schneiter, Professor
J.F. Miller, USDA-ARS
D.R. Berglund, Extension Agronomist



Less than 2cm

R-2



More than 2cm

R-3

Reproductive Stages



R-1



R-2



R-3



R-3 Top View



R-4 Top View



R-5.1



R-5.5



R-5.9



R-6



R-7



R-8



R-9

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Extension Service

North Dakota State University
Fargo, North Dakota 58105

FEBRUARY 1998

Description of sunflower growth stages

The total time required for development of a sunflower plant and the time between the various stages of development depends on the genetic background of the plant and the growing environment. When determining the growth stage of a sunflower field, the average development of a large number of plants should be considered. This staging method can also be used for individual plants. The same system can be used for classifying either a single head or branched sunflower. In the case of branched sunflower, make determinations using only the main branch or head. In stages R7 through R9, use healthy, disease-free heads to determine plant development if possible, because some diseases can cause head discoloration.

	Stage	Description
Vegetative Emergence	VE	Seedling has emerged and the first leaf beyond the cotyledons is less than 4 cm long.
Vegetative Stages	V (number) (i.e.) V1 V2 V3 etc.,	These are determined by counting the number of true leaves at least 4 cm in length beginning as V1, V2, V3, V4, etc. If senescence of the lower leaves has occurred count leaf scars (excluding those where the cotyledons were attached) to determine proper stage.
Reproductive Stages	R1	The terminal bud forms a miniature floral head rather than a cluster of leaves. When viewed from directly above the immature bracts form a many-pointed star-like appearance.
	R2	The immature bud elongates 0.5 to 2.0 cm above the nearest leaf attached to the stem. Disregard leaves attached directly to the back of the bud.
	R3	The immature bud elongates more than 2.0 cm above the nearest leaf.
	R4	The inflorescence begins to open. When viewed from directly above immature ray flowers are visible.
	R5 (decimal) (i.e.) R5.1 R5.2 R5.3 etc.	This stage is the beginning of flowering. The stage can be divided into substages dependent upon the percent of the head area (disk flowers) that has completed or is in flowering. Ex. R5.3 (30%), R5.8 (80%) etc.
	R6	Flowering is complete and the ray flowers are wilting.
	R7	The back of the head has started to turn a pale yellow color.
	R8	the back of the head is yellow but the bracts remain green.
	R9	The bracts become yellow and brown. This stage is regarded as physiological maturity.

From Schneiter, A.A., and J.F. Miller. 1981. Description of Sunflower Growth Stages. *Crop Sci.* 21:901-903.

For more information on this and other topics, see: www.ag.ndsu.edu



A-1145

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2M-2-98, 1.5M-4-05

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