

AGRO Site: BigFoot Field Data Documentation

Contents:

- **1999 AGRO README DOCUMENT**
- **2000 AGRO FPAR README DOCUMENT**
- **2000 AGRO TISSUE NITROGEN README DOCUMENT**
- **2000 AGRO ROOT BIOMASS README DOCUMENT**
- **2000 AGRO ALLOMETRY README DOCUMENT**
- **README for bf_agro_lai_aug_11_2000_x10_them_with_defaults.tif**
- **README for bf_agro_lai_july_4_2000_x10_them_with_defaults.tif**
- **README for bf_agro_landcover_2000_igbp_and_bf_modifier.tif**
- **README for bf_konz_landcover_2001_igbp.tif**

1999 AGRO README DOCUMENT (AGRO_README.txt)

I. LAI DATA

General Comments:

- * All data are reported as one-half total leaf surface area.
- * LAI values were determined using by multiplying leaf mass by specific leaf area (SLA).

Specific Comments:

- * There are no LAI values for several plots within each sampling period because of sample deterioration.

II. BIOMASS DATA

General Comments:

- * Biomass data are reported as kg dry mass per hectare.

Specific Comments:

- * There are no biomass values for several plots within each sampling period because of sample deterioration.

III. VEGETATION COVER DATA

General Comments:

- * Frequency_1999 = number of times the plot was sampled in 1999.
- * Plots 52 and 62 are located on residential property (mowed grass) and were not sampled.

Specific Comments: None

IV. TISSUE NITROGEN CONCENTRATION DATA FOR SELECTED PLOTS

General Comments:

- * Tissues were dried to a constant mass at 70 C and ground.
- * Samples were analyzed using the Kjeldahl digestion technique at the UW Soil and Plant Analysis Lab, Madison, WI.
- * Values are reported in total percent nitrogen.

Specific Comments: None

2000 AGRO FPAR README DOCUMENT [AGRO_2000_fpar_README.txt]

- Data collected during the summer of 2000 on two sampling dates (JULY and AUGUST)
- Fpar was calculated using the LAI 2000 variable "difn". This variable indicates the fraction of sky that is not blocked by foliage. This values ranges from 0 to 1. We converted this value to reflect the amount of radiation intercepted by the foliage.
- The instrument used, LAI 2000, only measures short wave (<490 nm) radiation.
- Data was not collected in May or September.
 - In May the soybeans were too small to measure, cotyledons had just emerged. The corn was also too short to measure.
 - In September there was no "green" leaf area in either corn or soybeans.
- Variable name 'se' is the standard error of the mean.
- The following subplots were in the (mowed) road (waterway) and were omitted from the study.
 - 54 east
 - 73 east
 - 73 south
- Plots 52 and 62 were in Wayne and Mary Jane Woodworth's front yard, so they were omitted.
- Plot 64 was also omitted from the data set. All but one subplot was in the road. The remaining (west) subplot was in an unplanted area.
- There are more plots missing fpar data. This was due to limitations associated with the instrumentation used (LAI 2000). There are differences in the sensitivity associated with each of the units. The sensitivity is variable depending on the production year of the particular unit. Trials were conducted at the end of the growing season and it was concluded that, below a particular light level, the unit was less sensitive. Data associated with this lower light level is compromised and is not being used.

2000 AGRO TISSUE NITROGEN README DOCUMENT

[AGRO_N_analysis_2000_README.txt]

****TISSUE NITROGEN CONCENTRATION DATA FOR SELECTED PLANTS****

General Comments:

- * Tissues were dried to a constant mass at 70 C and ground.
- * Samples were analyzed using the Kjeldahl digestion technique at the UW Soil and Plant Analysis Lab, Madison, WI.
- * Values are reported in total percent nitrogen.

2000 AGRO ROOT BIOMASS README DOCUMENT [agro_roots_2000_README.txt]

ROOT BIOMASS/BNPP DATA

- A 4.45 cm-diameter soil core was collected from 7 locations within each plot
- Half of the cores were collected within a row, half were between rows
- (Area sampled = 15.55 cm² per core, depth 50 cm)
- the first 5 locations were the center and the 4 cardinal directions;
the remaining two were from randomly assigned locations within the plot
- Samples were collected in September, 2000

2000 AGRO ALLOMETRY README DOCUMENT [AGRO_2000_README.txt]

ALLOMETRY DATA

- Data collected during the summer and fall of 2000 on four sampling dates (MAY, JULY, AUGUST, & SEPTEMBER)
- All values reported on a dry weight basis as kg/ha.
- 20 plants were harvested from each species at each sampling date for developing allometric equations. These plants were immediately cooled and stored on ice. Processing of allometry plants was always completed within 24 hours of sample collection.
- Separate allometric equations were developed for each parameter on each sample date, relating diameter and/or height to each reported variable.
- Variable names in the format '_se' are standard errors of the means.
- The following subplots were in the (mowed) road (waterway) and were omitted from the study. In this case n=4.
 - 54 east
 - 73 east
 - 73 south
- Plots 52 and 62 were in Wayne and Mary Jane Woodworth's front yard, so they were omitted.
- Plot 64 was also omitted from the data set. All but one subplot was in the road. The remaining (west) subplot was in an unplanted area.
- Plot 89 was oats for one-half the growing season, followed by alfalfa. There is no replication for this vegetation type at AGRO.
- LAI reported is "green" LAI
- REGRESSION EQUATIONS ARE IN "agro_allometry_2000.csv"

***** May (5/24/00) *****

- Only corn was measured and collected in May since soybeans were too small (only the cotyledons had emerged) and the

Woodworth field was to be re-planted due to relatively poor germination rates.

- Plot 89 was oats in May. These samples have not yet been weighed and analyzed.

***** July (7/24/00) *****

- Plot 89 was oats in July. There is no data currently for the plot.

***** August (8/11/00) *****

- Plot 89 was alfalfa in August. There is no data currently for the plot.

***** September (9/9/00) *****

- There is no LAI reported for September. There was no "green" leaf area present; all leaves were dead. In addition, soybean leaves were "cured out" and beginning to senesce, so leaf mass from August was also used for September.

- Plots 86-89 were harvested in September prior to sampling so data could not be collected.

- Plot 89 was alfalfa in September. It was harvested prior to sampling.

README for bf_agro_lai_aug_11_2000_x10_them_with_defaults.tif

This layer supercedes all versions released prior to jan01 2003

1. General Information

Theme: Leaf Area Index (LAI)

Theme Date: August 11, 2000

Project: BigFoot

Site: AGRO (Illinois, USA)

Biome: Cropland

Contact: Thomas.Maiersperger@orst.edu

2. Layer Information

Rows: 280

Cols: 281

Data Type: unsigned 8-bit thematic

Format: Geotiff

3. Map Information

ULX: 386263

ULY: 4432781

Pixel Size: 25

Units: meters

Projection: UTM

Spheroid: WGS84

Datum: WGS84

Zone: 16 North

4. Attribute Information

Pixel values are LAI estimates multiplied by 10 (e.g. a value of 55 = 5.5 LAI)

5. Additional Information

Some land classes were not modeled. For these pixels, default LAI values were inserted based on literature estimates or other information.

README for bf_agro_lai_july_4_2000_x10_them_with_defaults.tif

This layer supercedes all versions released prior to jan01 2003

1. General Information

Theme: Leaf Area Index (LAI)

Theme Date: July 4, 2000

Project: BigFoot

Site: AGRO (Illinois, USA)

Biome: Cropland

Contact: Thomas.Maiersperger@orst.edu

2. Layer Information

Rows: 280

Cols: 281

Data Type: unsigned 8-bit thematic

Format: Geotiff

3. Map Information

ULX: 386263

ULY: 4432781

Pixel Size: 25

Units: meters

Projection: UTM

Spheroid: WGS84

Datum: WGS84

Zone: 16 North

4. Attribute Information

Pixel values are LAI estimates multiplied by 10 (e.g. a value of 55 = 5.5 LAI)

5. Additional Information

Some land classes were not modeled. For these pixels, default LAI values were inserted based on literature estimates or other information.

README for bf_agro_landcover_2000_igbp_and_bf_modifier.tif

This layer supercedes all versions released prior to jan01 2003

1. General Information

Theme: Land Cover using IGBP classification scheme and BigFoot modifiers

Theme Date: Year 2000

Project: BigFoot

Site: AGRO (Illinois, USA)

Biome: Cropland

Contact: Thomas.Maiersperger@orst.edu

2. Layer Information

Rows: 280

Cols: 281

Data Type: unsigned 8-bit thematic

Format: Geotiff

3. Map Information

ULX: 386263

ULY: 4432781

Pixel Size: 25

Units: meters

Projection: UTM

Spheroid: WGS84

Datum: WGS84

Zone: 16 North

4. Attribute Information

| Value | Class Name |
|-------|------------|
|-------|------------|

| | |
|---|-------|
| 1 | Water |
|---|-------|

| | |
|---|-------------|
| 2 | Urban/Built |
|---|-------------|

| | |
|---|-----------|
| 3 | Grassland |
|---|-----------|

| | |
|---|----------------------|
| 4 | Corn (IGBP cropland) |
|---|----------------------|

| | |
|---|-------------------------|
| 5 | Soybean (IGBP cropland) |
|---|-------------------------|

README for bf_konz_landcover_2001_igbp.tif

This layer supercedes all versions released prior to Jan 01 2003

1. General Information

Theme: Land Cover in IGBP Units

Theme Date: Year 2001

Project: BigFoot

Site: KONZ (Kansas, USA)

Biome: Tallgrass prarie

Contact: Thomas.Maiersperger@orst.edu

2. Layer Information

Rows: 282

Cols: 282

Data Type: unsigned 8-bit thematic

Format: Geotiff

3. Map Information

ULX: 706548

ULY: 4332973

Pixel Size: 25

Units: meters

Projection: UTM

Spheroid: WGS84

Datum: WGS84

Zone: 14 North

4. Attribute Information

Value Class Name

4 Deciduous Broadleaf Forest

7 Open Shrubland

8 Woody Savanna

10 Grassland

12 Cropland

13 Urban/Built

17 Water