Study of Michigan Crop Formations, 1993-94

In this report we present summary findings from laboratory investigations of three wheat crop formations discovered during the 1993 and 1994 growing seasons, and located within a four mile radius of the Pinelandia facility. Only one formation was observed in 1993 (near Napoleon, Mich.; SW of Lab.), and in 1994, wheat was again planted in this field, with a second formation occurring at the same location in the field and about the same time of year. The third formation was found in July of this year, near Grass Lake, Mich. (North of lab.).

In this brief introduction we would like to point out that the findings from our detailed studies clearly indicate that the type of transformations occurring in these local formations are quantitatively and qualitatively the same as those found in plants from other locations in this country, as well as within Canada and the UK. This clearly implies that crop formations are very pervasive. The energies involved may be either organized to produce secondary instability with clearly defined geometric outlines, or those as discussed here, with more irregular outline. These more irregular forms have been essentially ignored, even though as pointed out in the "Comment" section of this report they have been repeatedly photographed in close proximity with the sharply outlined geometric formations, and with the same irregular shapes and sizes as those discussed here.

Laboratory Results:

These formations were sampled with the same general procedure as used in other formations, both domestic and abroad.

I.)1993 Crop-Print: KS-01-142 Located off Cady road, Napoleon, Mich., on the farm of Mr. Scott Lantis.

Plant material: Wheat plants with seed heads, *Triticum aestivum*.

Formations: Five irregular shaped crop-prints discovered by Mr. Jim Bowles, Grass Lake, MI, on July 19, 1993. See aerial photos in Fig.1 (attached), taken by Mr. Tony Hurst (from the Napoleon, Airport).The formation occurred around 7-1-93, and samples were taken by Jim Bowles and W.C.L. on 7-19-93.

The arbitrarily designated crop-print numbers are indicated on the Fig.1 photographs along with their approximate diameters and should be used for reference purposes. Since this laboratory had not previously examined formations with irregular outlines, it was decided to examine all twelve sample sets with the verification method (see Report No.18), each compared with one of the control samples. The percent difference between the crop-print and its control are presented in Fig.2 bar chart. If the alpha values were of random distribution, about one half would be expected to be less than the controls (negative percentages), but instead all have higher percentages or alpha levels. The odds of this happening by chance alone is 2.44×10^{-4} or roughly 2 in 10,000 (an extremely low probability). In addition, eleven of the twelve samples had mean alpha values, very significantly higher ($P<<0.05$) than their controls. It was interesting to note that the exception, sample No.4, was the only sample group in which splits and expulsion cavities were not found.

The stem node and germination data are summarized in Table I., along with seed weights. The sample sets are separated in terms of crop-print location, and whether in the upright or downed condition.

Table I. Stem Node and Germination Analyses (KS-01-142)

Crop-Print Group	Splits and Expulsion Cavities at N2 to N4 Frequency	No.	Wt/20 seeds	Five day plant ht. - cm ave.	sd	N
Controls Taken at-100,200,300,400 ft.	0%	78	0.76g	6.40	2.85	80
#1(A&G) Standing Epicenter	41.7%	48	0.44g	7.31	1.86	40
#1 (B,C,D,E) Downed at 6ft. radially	39.8%	98	0.49g	7.38	0.62	80
#2 (A) Epicenter partially upright	33.3%	18	0.45g	6.43	2.83	20
#2 (B) Downed-near epicenter	13.3%	30	0.60g	6.45	3.17	20
#3 (A) Satellite-downed	17.6%	17	0.50g	6.36	2.84	20
#4 (A) Satellite-downed	0%	16	0.42g	5.76	3.30	20
#5 (A) Satellite-downed	5.6%	18	0.37g	5.80	3.01	20

Although the seed weights are reduced in the Table I. formation samples, there are no significant differences in the 5-day seedling growth. This would suggest that the energy input occurred just before complete endosperm development.

II.) 1994 Crop-Print: KS-02-34 Located off Cady Road, Napoleon Mich., on the farm of Scott Lantis.

Plant Material: Wheat plants with seed heads, *Triticum aestivum*

Formation: Irregular outline as shown in Fig.3 (very rough sketch) and of about the same size and location in the field, as those shown in Fig.1. Believed to have formed around 6-24-94.

Located by: Ms. Deb Smith of Jackson, Mich., on 7-2-94 and sampled on the same date by W.C.L.

The stem node expansion data in Table II., were organized according to specific sampling regions (see Fig.3). In this formation it was not possible to clearly distinguish a single epicenter. The standing samples A and E may represent two central epicenters of rotation?

Table II. Summary of Node Analyses in KS-02-34

	N1-mm Node(apex)			Node Expansion
Samples	ave.	sd	N	Percent
Controls (C1,C2)	2.76	0.25	14	----------
A,E Standing	3.78	0.98	12	+37.0*
F,D Downed	4.57	0.72	15	+65.6*
B Overlapping	4.83	0.45	8	+75.0*

*-P<0.05

In addition to the very significant increases in node expansion within the formation samples, the germination data revealed significant decreases in seed growth vigor. The 7-day seedling height data were examined with frequency distribution analyses. These histograms are presented in Fig. 4, using the same grouping as in Table II, with each sample set referenced at the top of the histogram. For those unfamiliar with this type of diagram, see explanation in middle of figure.

What we find in Fig.4 is a completely different growth pattern in the plants from seeds within the formation as compared with the control sets. The controls, at the upper left, give a normal growth pattern with the Mode (bar interval with maximum number of plants) located near the central region. The type of patterns observed in seedlings from the standing and downed plants (upper right and lower left) are never observed in normal seedling growth. Here the Mode is shifted far to the left (Bar#1) or within the region of seedlings with very reduced growth (1-2 cm ht.), with an indication of a bimodal effect. Seedlings from the overlapping region (lower right) also have maxima in the 2-3 cm ranges. This same type of unusual frequency distribution within crop formation samples has been observed in a number of previous studies. For example, see Report No.24 for abnormal frequency distributions in growth from seeds taken at Devises, England, in 1993.

III.) 1994 Crop-Print: KS-02-38: Located east of Grass Lake, Michigan, on the Carl Wollpert farm.

Plant Material: Wheat plants with seed heads, *Triticum aestivum*. At the time of sampling the seed heads appeared mature with little chlorophyll remaining.

Formation: Two irregular formations near corner of field, very near utility wires (see Fig.5 for rough diagram of formations). Probably formed in mid June.

Located by: Mrs. Gail Miller, Brooklyn, Michigan, on 7-5-94 and samples taken by W.C.L. on 7-6-94.

The summarized data in Table III. include the results from both the node examinations and seed germination. The node expansion and bending data are based on values from the apical or N4 nodes. The seeds from the formation samples were abnormally slow to germinate and the final seedling data were taken at the 14-day development stage. The N4 expansion data are expressed in term of the percent change relative to the controls, all being significantly higher ($P<0.05$), as were the node bending values from the formation samples. See Fig. 5 for specific sampling locations. Control C1 was taken 100 ft. north of formations, and C2, 200 ft. north.

Table III. Node and Germination Analyses KS-02-38

Sample	Node N4 Expansion	Node N4 bend. (deg.)		N	Seedling ht. 14-day cm		N
Control C1	-------	4.4	2.1sd	8	12.89	3.97sd	20
Control C2	-------	4.2	2.9	6	15.37	5.00	20
A-standing	+19.3%	38.0	6.4	7	8.89	5.08	16
E-standing	+19.9%	10.8	5.7	5	9.44	3.85	18
B-downed	+16.3%	23.3	6.2	6	6.79	5.29	17
D-overlapping	+18.8%	44.0	15.5	6	8.42	5.43	17
F-downed	+16.5%	22.0	8.4	6	7.64	4.43	17

Note: Sample D was the only set to show splits and expulsion cavities (25% level). All expansion and bending data from the formation samples were significantly higher ($P<0.05$) than the controls and the seed growth levels were significantly lower.

Comments:

Although the symmetrical, geometrically outlined crop formations have drawn the most attention from the field investigators, we have demonstrated here that the irregular, less ascetically pleasing types exhibit the same degree of energy induced transformations. All three of the Michigan formations exhibited significant node expansion, node bending levels and two contained expulsion cavities, all consistent with transformations found in the regular outlined crop-prints. The abnormal embryo development within seeds taken from the irregular formations are also consistent with growth studies from numerous geometric formations over the last several years. In fact, these three Michigan samples are not the first to provide evidence that the irregular formations are receiving the same energy induced alterations. Report No.5 issued July 10, 1992, discusses an irregular crop formation in Pennsylvania (KS-01-5), in which stem node and embryo growth transformations were very pronounced.

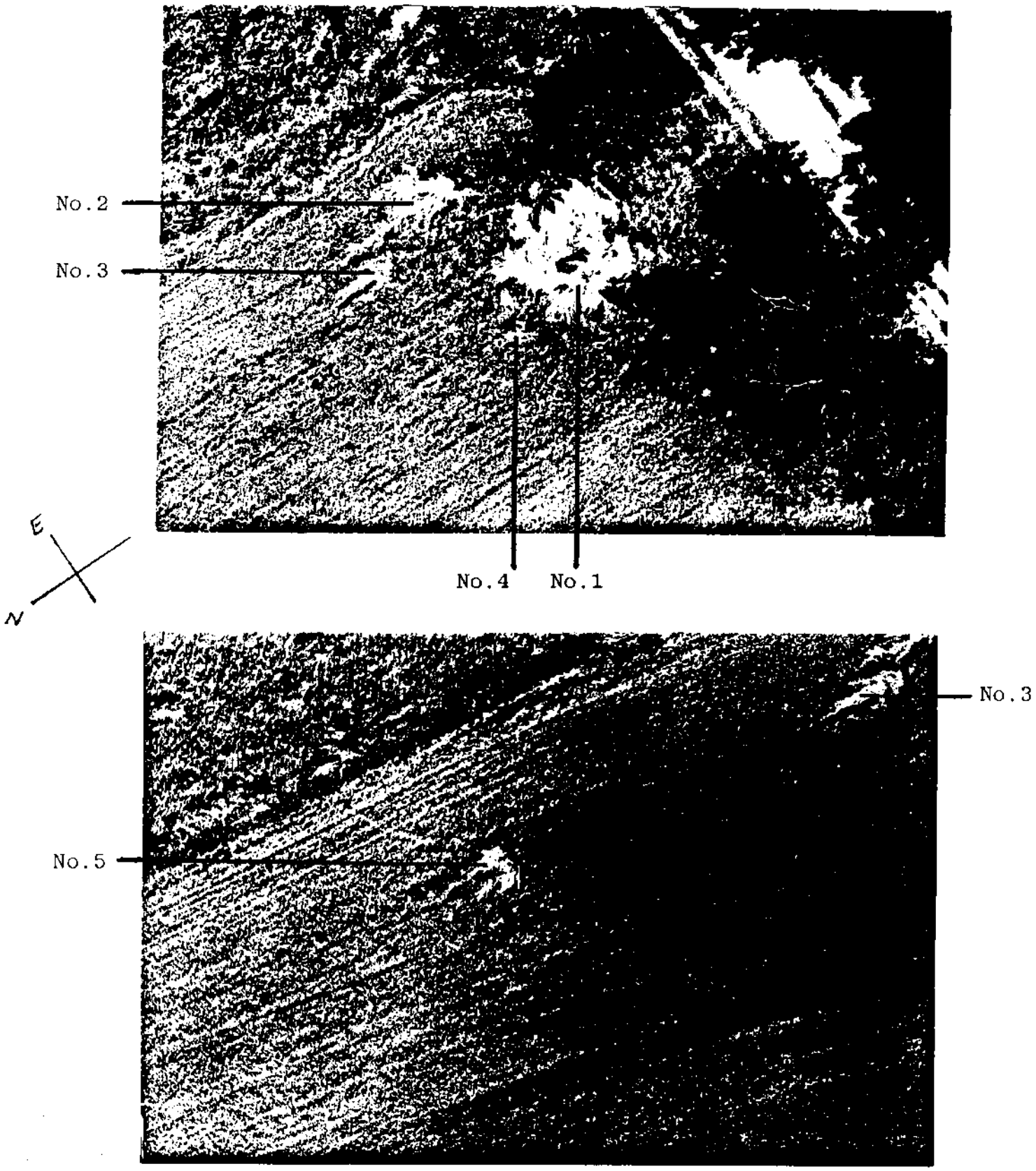
It is quite certain that some skeptics will still proclaim that there is no external evidence of any relationship between the irregular formations and the geometric forms. As it turns out there is an abundance of evidence showing an intimate relationship between the regular and irregular formations. This evidence is right before our eyes, for example in "Spuren Im Korn, by J. Kronig (Zweitausendeins-Laden, Berlin, 1992), adjacent irregular-smooth associations can be observed on pp. 16,17,35, 38-near power line pole, very pronounced on pages 40-41 and 43; others on pp. 51, 56, 61, 82, 112, 134 and 137; and in other related publications.

In spite of their relative abundance the irregular outlined formations have generally been ignored by crop formation investigators and have remained un-sampled (the exceptions being Barry Reynolds, Chad Deetken, Shelly Keel and James Withers). From the evidence presented in this and previous reports, it is quite apparent that the patterns of geometric organization are of minimal importance compared with the level of energy organization. The primary difference, as indicated by the Beers Law study (Report No.24) is the development of a more uniform energy distribution or energy array in the geometrically outlined formations. In fact all crop formations might be defined as "Matrix Energy Crop-Prints" resulting from various arrays of organized energies.

W.C. Levengood
Pinelandia Biophysical Lab.

John A. Burke
Am-Tech Laboratory

Fig.1 Crop formations at Napoleon, Michigan, 1993 (KS-01-142)



Arbitrary formation numbers used for designating sample locations (see report). Approximate formation diameters; No.1-30 ft.,No.2-18 ft., No.3-12 ft., No.4-6 ft., No.5-10 ft. Aerial photo's taken by Mr. Tony Hurst, from Napoleon, Mich., airport.

Fig.2 Alteration in alpha verifications within bract tissues from Michigan (KS-01-142) crop prints, relative to their control. All highly significant increases ($P \ll 0.05$), except samp 4A. Each sample set ran with a control, each with N=30 test oscillations.

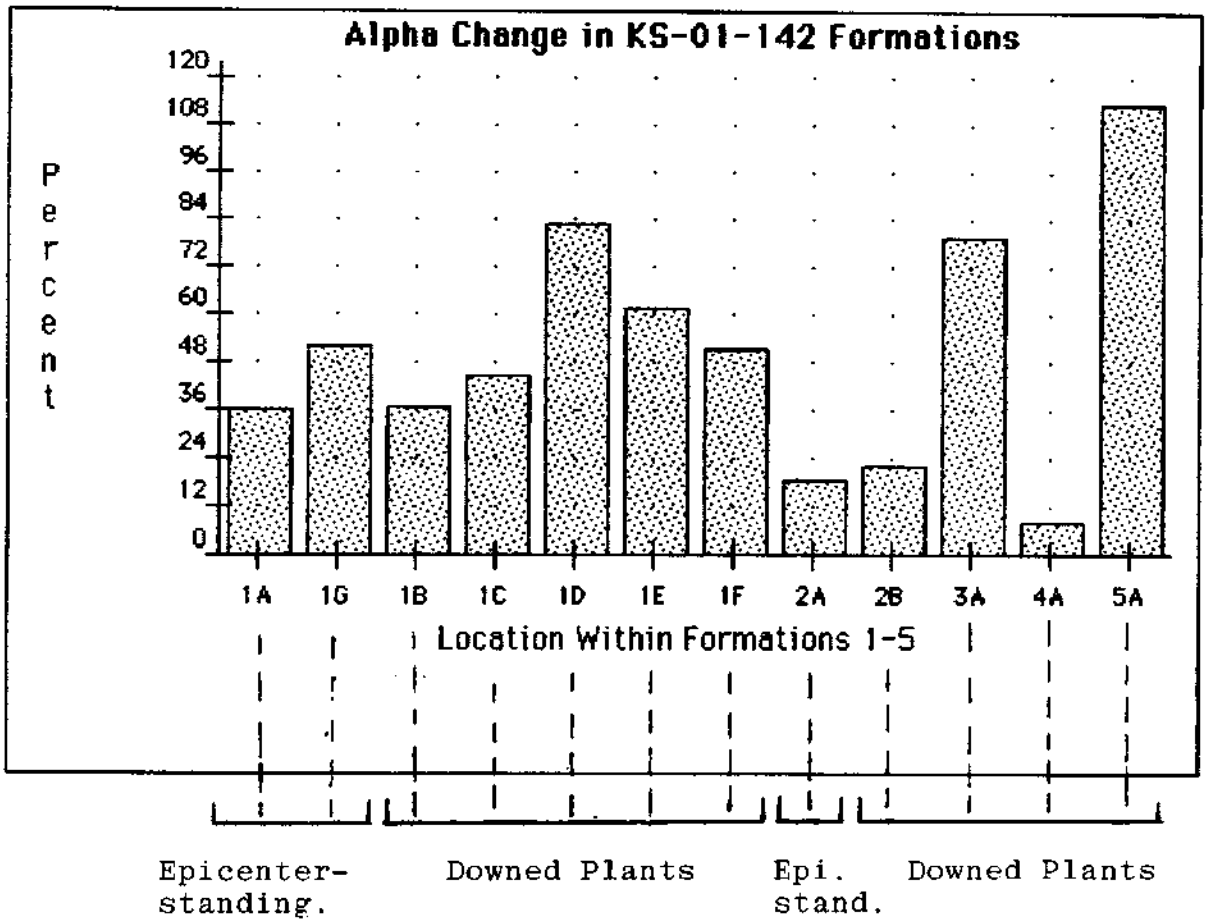


Fig.3 Rough sketch of 1994, Napoleon, Mich. formation at repeat location in wheat field (see Fig.1 for previous year)

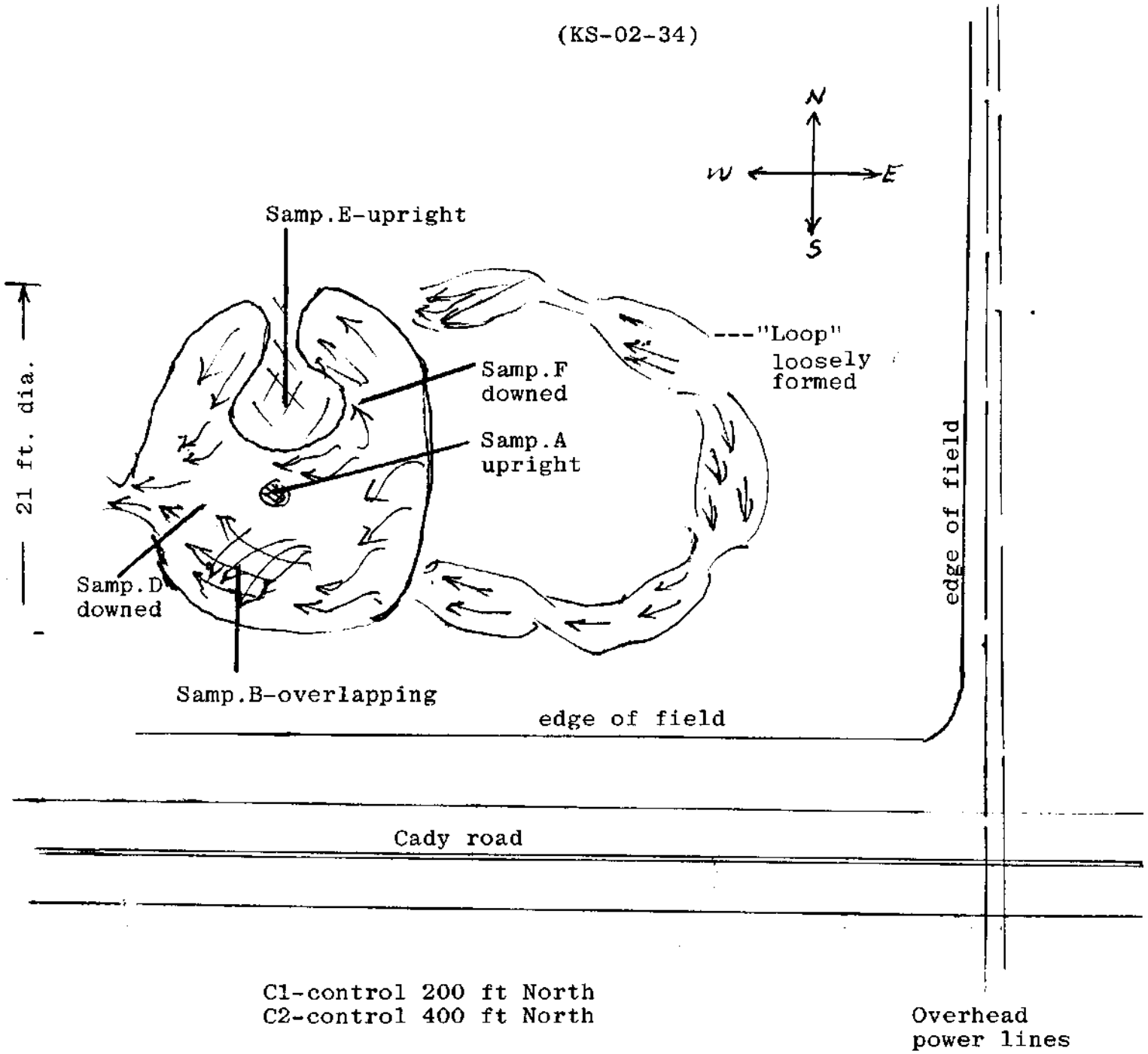
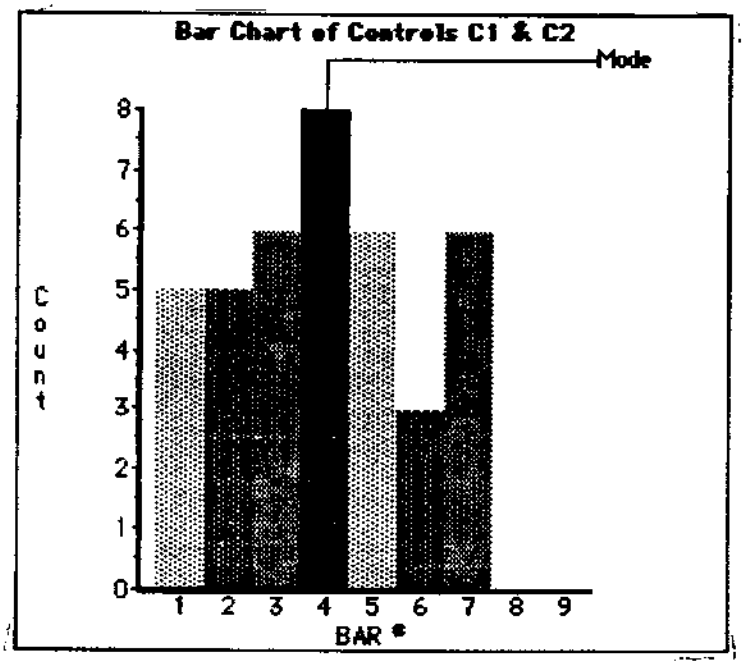
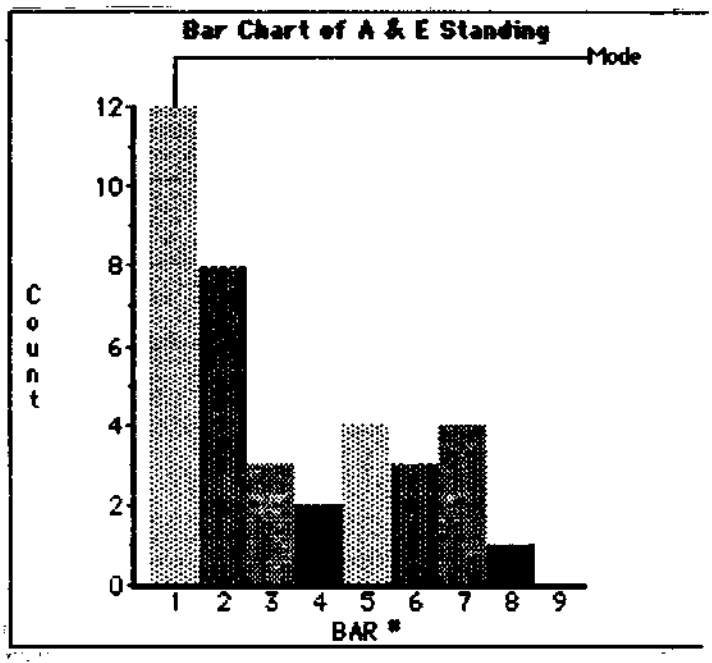


Fig.4

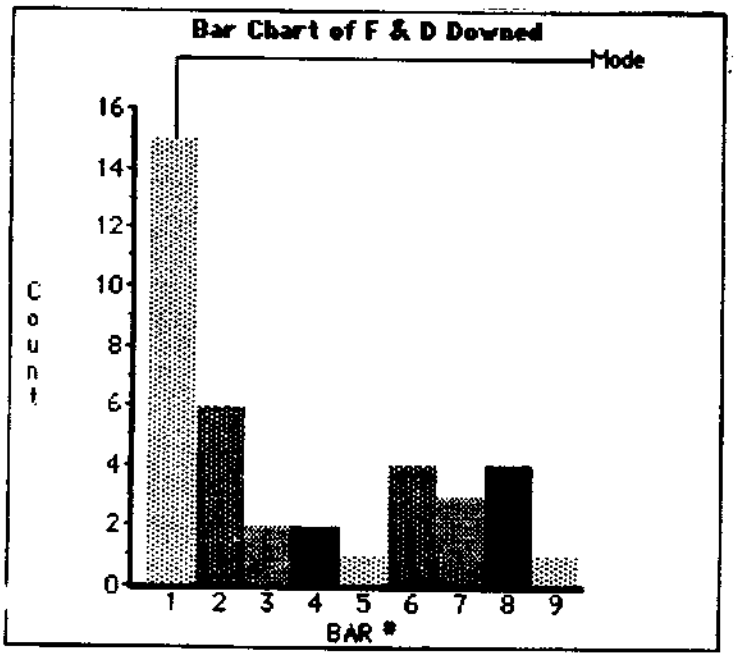
Frequency distribution analyses of seed development (at 7-days) in 1994, Michigan, Crop Formation KS-02-34.





Ordinate axis- "Count" is number of seedlings in the plant ht. interval (Bar#)

Abscissa axis- "Bar#" is seedling length interval in cm. (example-Bar#5 is number of plants in the 5-6 cm height range)



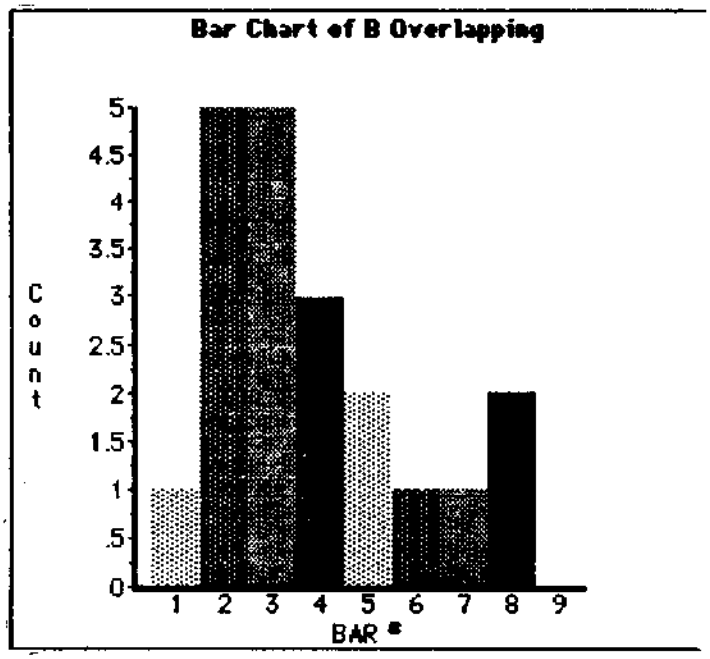
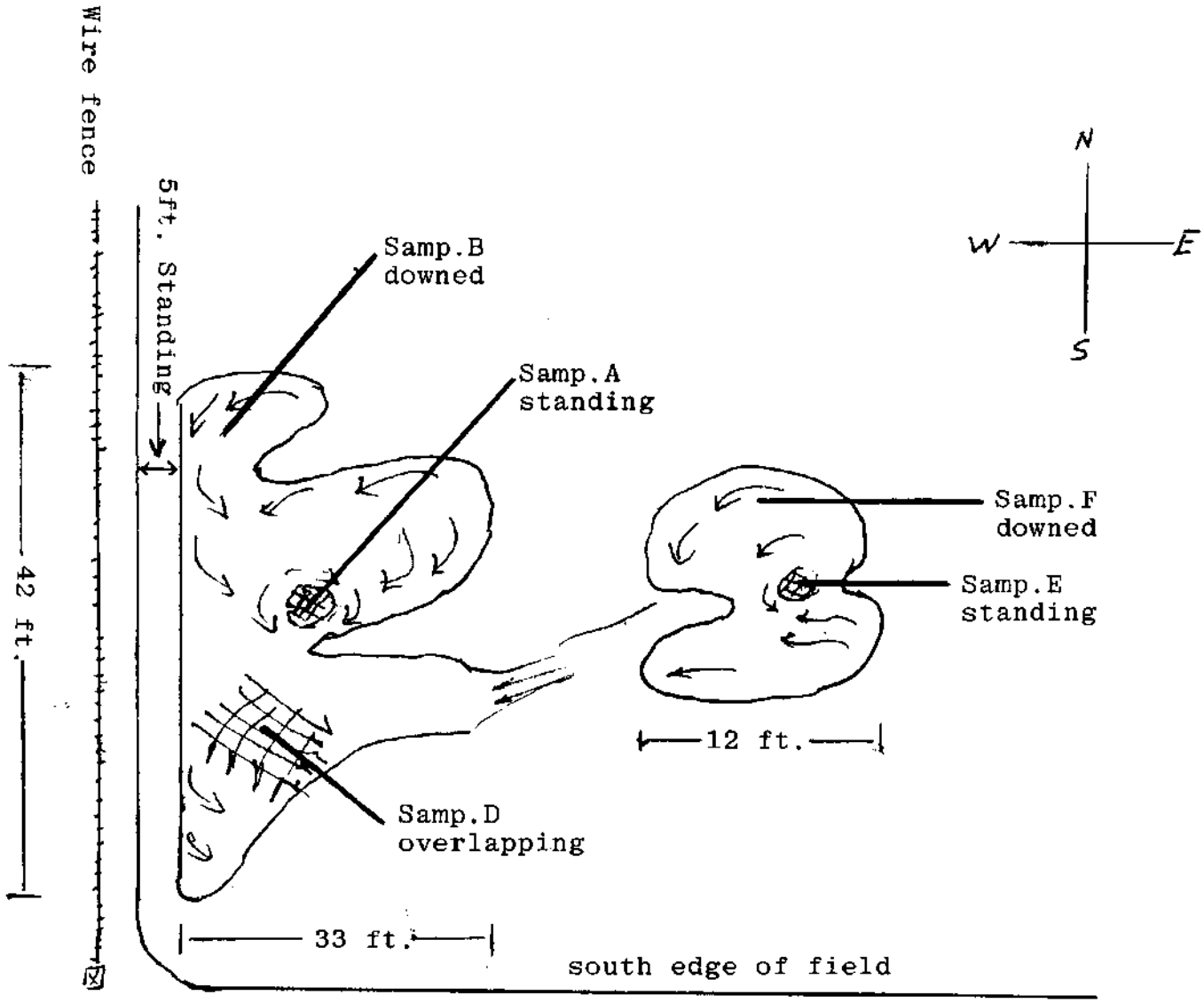


Fig.5 Rough sketch of 1994, Grass Lake, Michigan formation on the Carl Wollpert farm (KS-02-38)



Bell Telephone - line above and underground

Grass Lake Rd.