June 23, 1993

Reseeerch Report: Pinelandia Biophgseeal Lab.

Canadian Confirmation of Crop Circle Growth Anomalies

Introduction:

In a series of professionally executed experiments, Mr. Chad Deetken at Pacific Research in Vancouver, Canada, has independently confirmed seed germination anomalies in Canadian crop circles. In addition he has also discovered a new aspect in the growth of crop circle wheat seedlings which appears when the plants are placed under an environmental stress. The seeds used in his work were taken from one of a pair of circles at Albertville, Saskatchewan, Canada. These formations were about a mile apart, one in a wheat field (KS-01-96) and the other in an oat field (KS-01-94), both on the same farm.

The purpose of this report is two fold; first to examine the Canadian data in relation to observations obtained at this laboratory from both the wheat and oat formations at Albertville, and second to explore the seedling growth anomaly as it may relate to a similar response observed in plants taken from a 1992 formation at Etchilhampton, England. From the results obtained in these current investigations it is quite apparent that it is very worthwhile to begin comparative studies between formations occurring at various geographic locations.

I. Albertville Formation in Wheat (KS-01-96):

Both formations were circular in shape and formed between Sept. 21-23, 1992 and samples were taken around Sept. 25, 1992, by Mr Deetken who spent considerable time on his hands and knees searching for signs of human entry or foot prints- "none were found". Seed heads were sent to this laboratory and some were retained by Mr. Deetken.

Germination test were conducted independently at both the Pacific Research and Pinelandia labs. The results of Chad's work is summarized in the curves shown in Fig.1 for samples taken from the wheat formation (KS-01-96). The same germination and growth procedures were applied, as used in this lab. and the seedling growth factor, Df is shown in the bottom set of curves. The Df value is consistently higher in the crop formation seedlings than in the control seedlings.

The upper curves in Fig.2 show Df data from a segment of the germination test period conducted at Pinelandia. The wheat sample differences are essentially identical to those obtained by Mr. deetken. It is also apparent that very similar growth responses were being obtained, since the Df values at the six day germination point are in both sets of data, within the same range. The circled numerals in the diagram at the bottom of Fig.2 indicate the sample number and collection points. The legend at the right indicates the distance of the control samples from the formation. In the summarized data (upper curves) the lower curve of the pair is an average of the Df values from the three controls and the upper curve an average of the Df values from the three, inner circle formation samples. In order to present the data in a simple form the Df values for ring sample #4 are not shown here; however, the Df values were also higher than the controls and in the same range as in the #1 to #3 sample sets.

II. Seedling Stress Response.

After completion of the germination tests (conducted in sterile potting soil) Mr. deetken kept the plants under grow lights for a period of 30 days, at which point (March 15th), with both groups exhibiting the same plant height, they were planted outdoors in natural soil conditions, but, with the exception that both sets of plants were under the same, low level of ambient lighting.

Under this light stress condition the formation plants grew and developed at an accelerated rate, compared with the controls. The photograph in Fig.3 was taken by C. Deetken on May 28, 1993 and shows the plants from the formation seeds on the left and the controls on the right. Since this is spring wheat the developing heads are very clear in the formation plants but hardly evident in the controls. The plant height difference is in the order of a 40% increase in the formation group.

In some recent "catch-up work" on the 1992 samples submitted from England, another kind of stress response was noted in crop formation samples. The seed heads were from a large circle at Etchilhampton ("which was believed by many to be a hoax") with no information given as to the specific geometry or the date at which it formed or when the samples were taken. Since the "alpha" values obtained with the new verification method (see Report #15) gave a very high statistical probability that this formation was genuine it was decided to examine the germination characteristics.

The data from the early stages of seed development clearly disclosed a lower growth rate in the two formation samples (designated "A" and "B") than the rate in the control or "C" sample. Ordinarily the final seedling measurement is made at 10 days, but in this case the seedlings were inadvertently left until the 14 day stage. This oversight turned out to provide very interesting information.

In this type of growth under low nutrient conditions the seedlings, normally are running out of input from the seed endosperm, at the 10-14 day stage. In monocots one finds only the cotyledonary leaf, that is a single leaf. In these sample groups the formation seedlings exhibited two leaves (the cotyledon plus the first primary leaf) as shown in Fig.4 for the B-Circle test in the bottom photo (the A-test was also photographed but accidentally taken out of focus. The quantitative differences in leaf extension are shown in the following table.

	Total Leaf Length-cm		No. Seedlings With		
Sample	Ave.	s.d.	Primary Leaves	N-Total	Diff.
A-Circle	29.45	5.74	18	20	+33.1%*
B-Circle	28.34	4.50	19	20	+28.1%*
C-Control	22.12	3.05	0	20	------

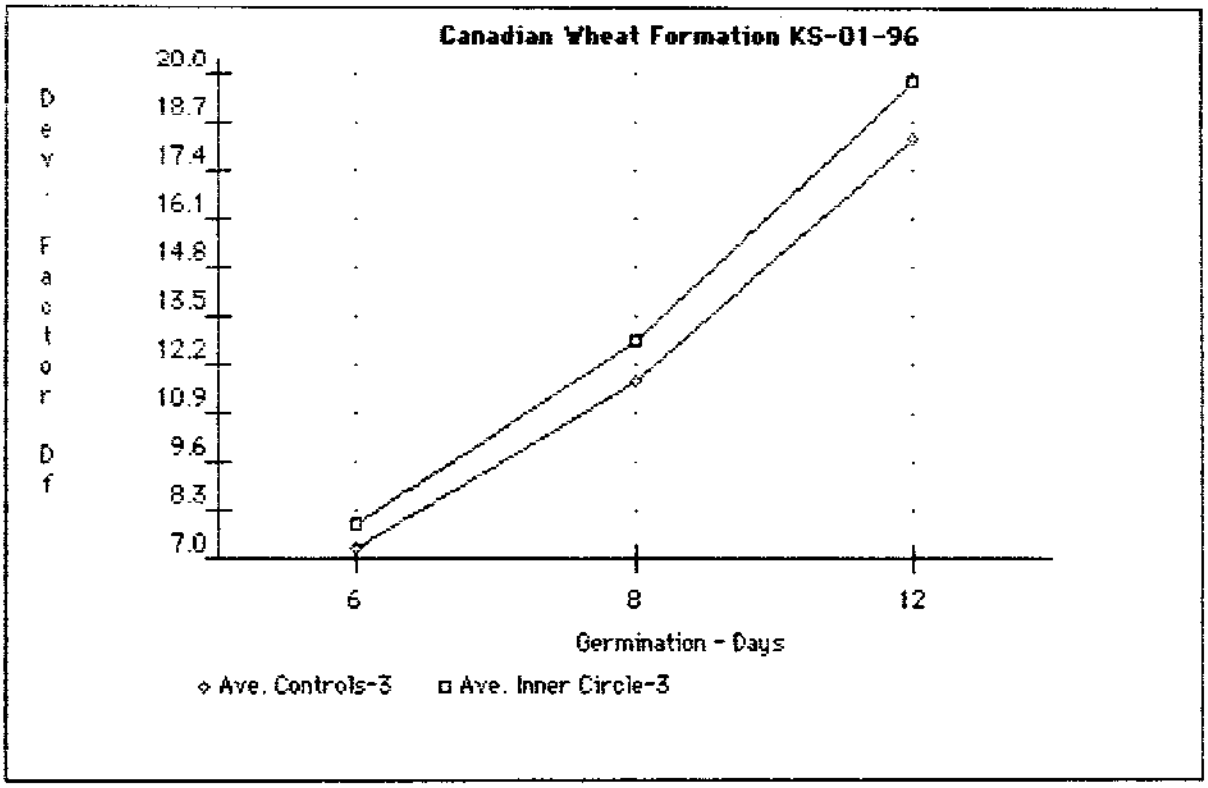
*- $P<0.05$

The significance of these differences lies in the fact that the formation plants are developing at a much higher rate than the controls. Under this nutrient stress condition the formation plants are approaching the autotrophic phase (the stage at which they can produce their own food through photosynthesis) at an accelerated rate compared with the controls.

III. The Oat Formation at Abertville, Canada (KS-01-94).

Chad's sampling diagram is shown at the bottom of Fig.5 and the seedling development factor data in the upper curves. Oats germinate and develop at a much slower rate than wheat, which accounts for the lower level of Df values. In this sample set the seedling development in all of the formation samples lie well above the control level.

As indicated in the legend below, the control curve is an average of the Df level obtained in samples #7, #8 and #9, all taken 250 ft. from the formation (see upper left in diagram). Control #10, taken only 10 ft. from the formation is designated as a "proximity control" and provides clear



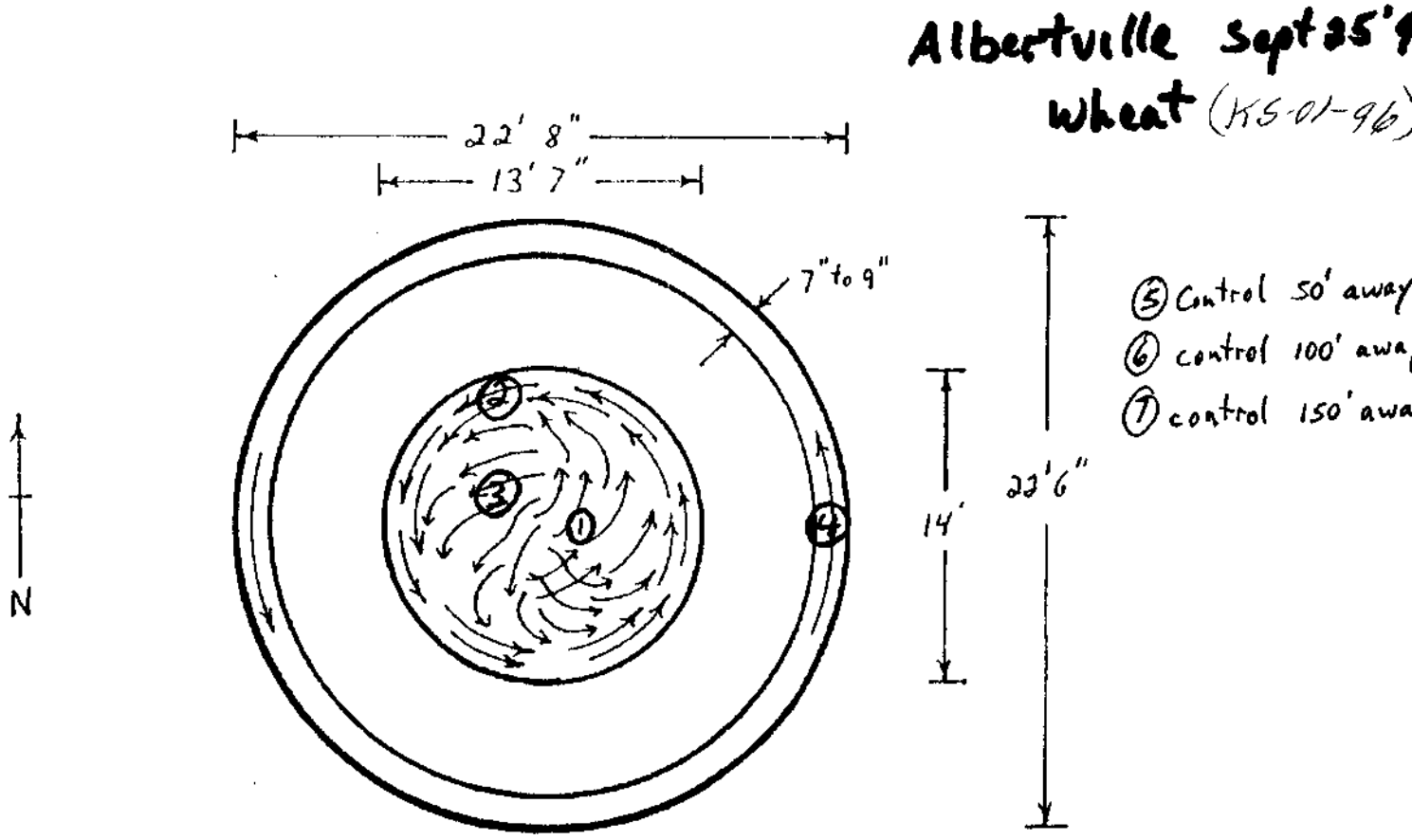


Fig.2 Germination results on the Albertville formation (KS-01-96). Obtained at the Pinelandia Lab. Lower diagram shows sample locations, and control distances.

Fig.1 Results of wheat germination tests conducted at Pacific Research Lab., by Mr. Chad Deetken on the Albertville formation 1992 (KS-01-96)

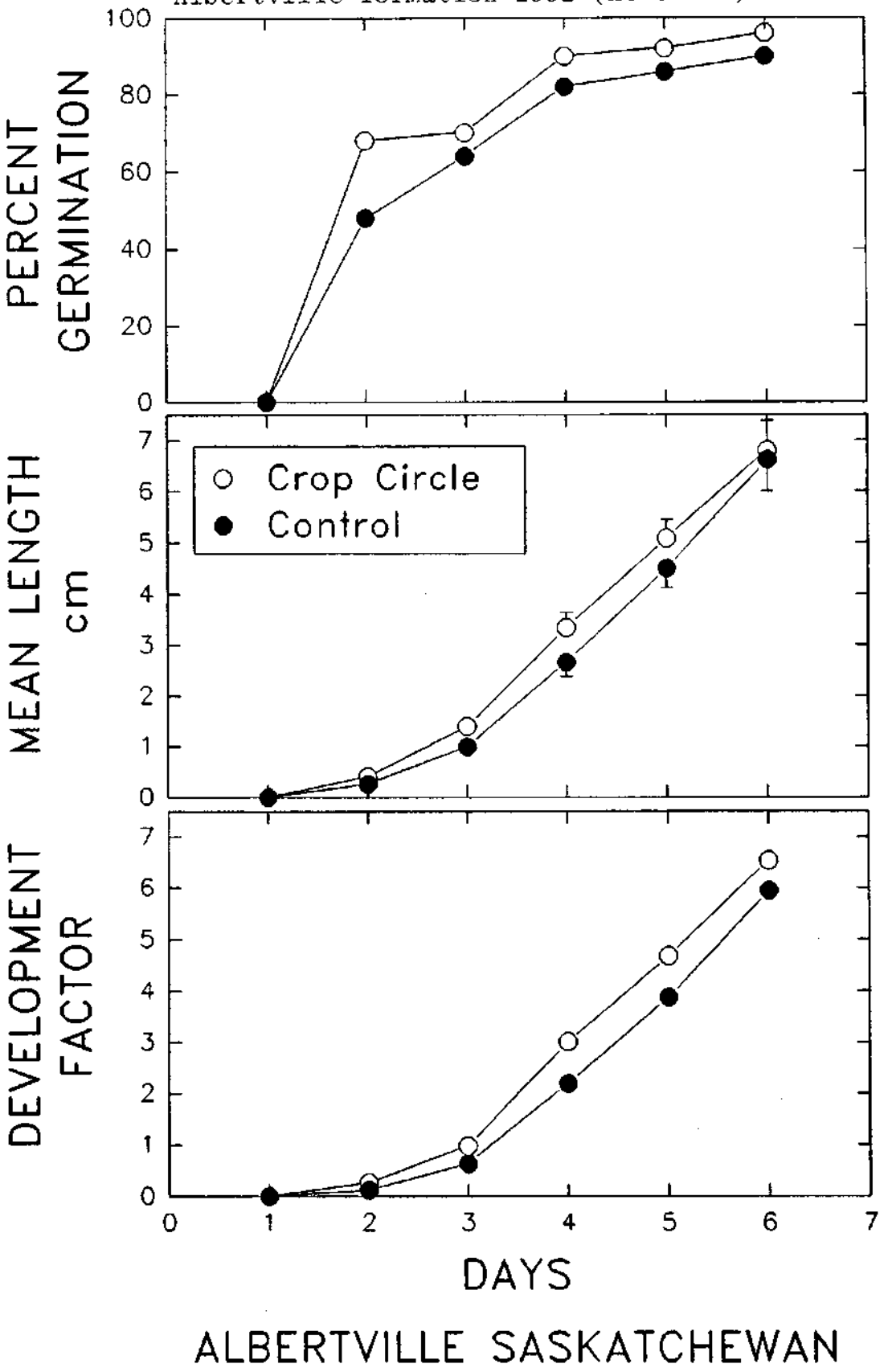
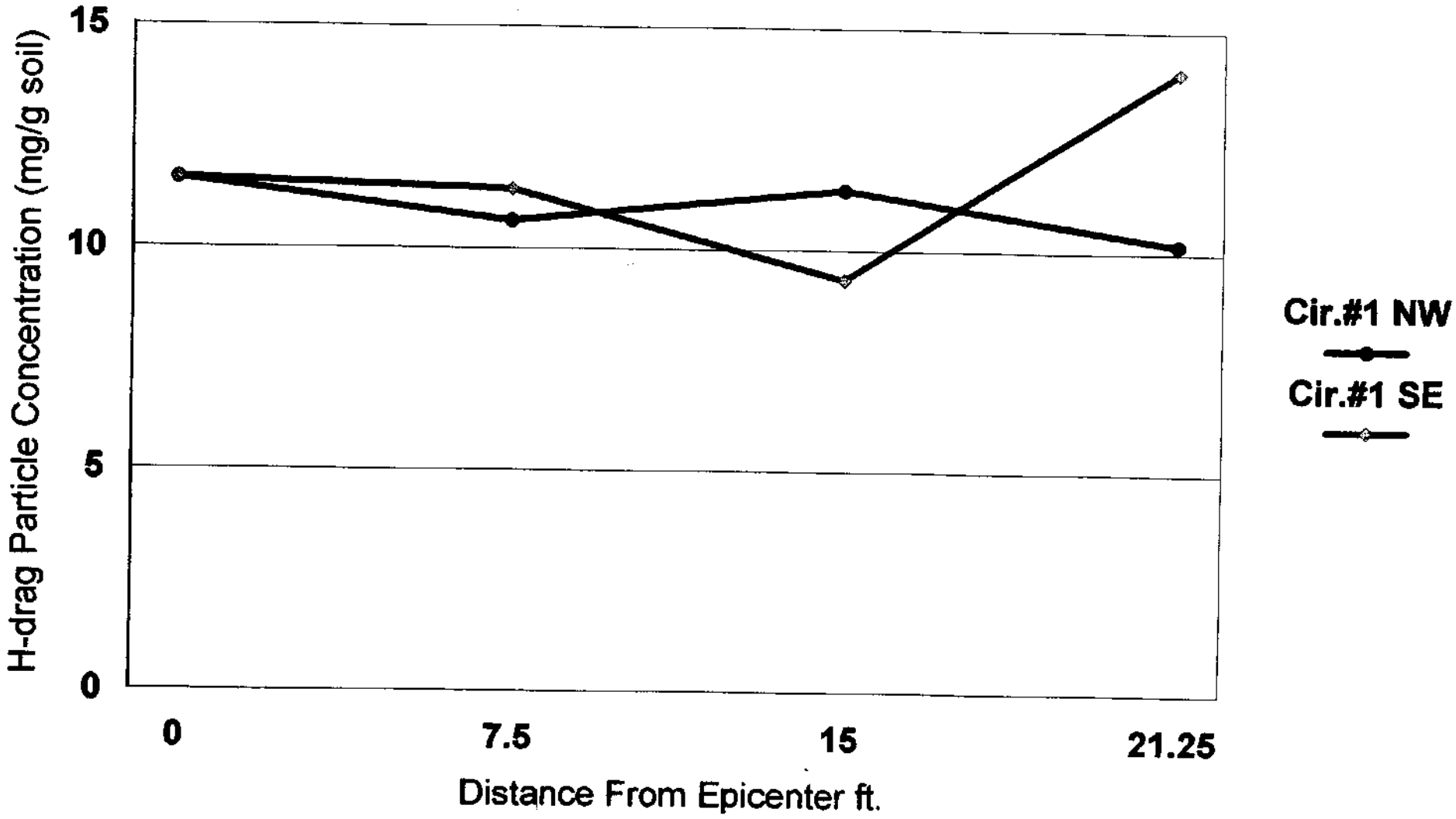
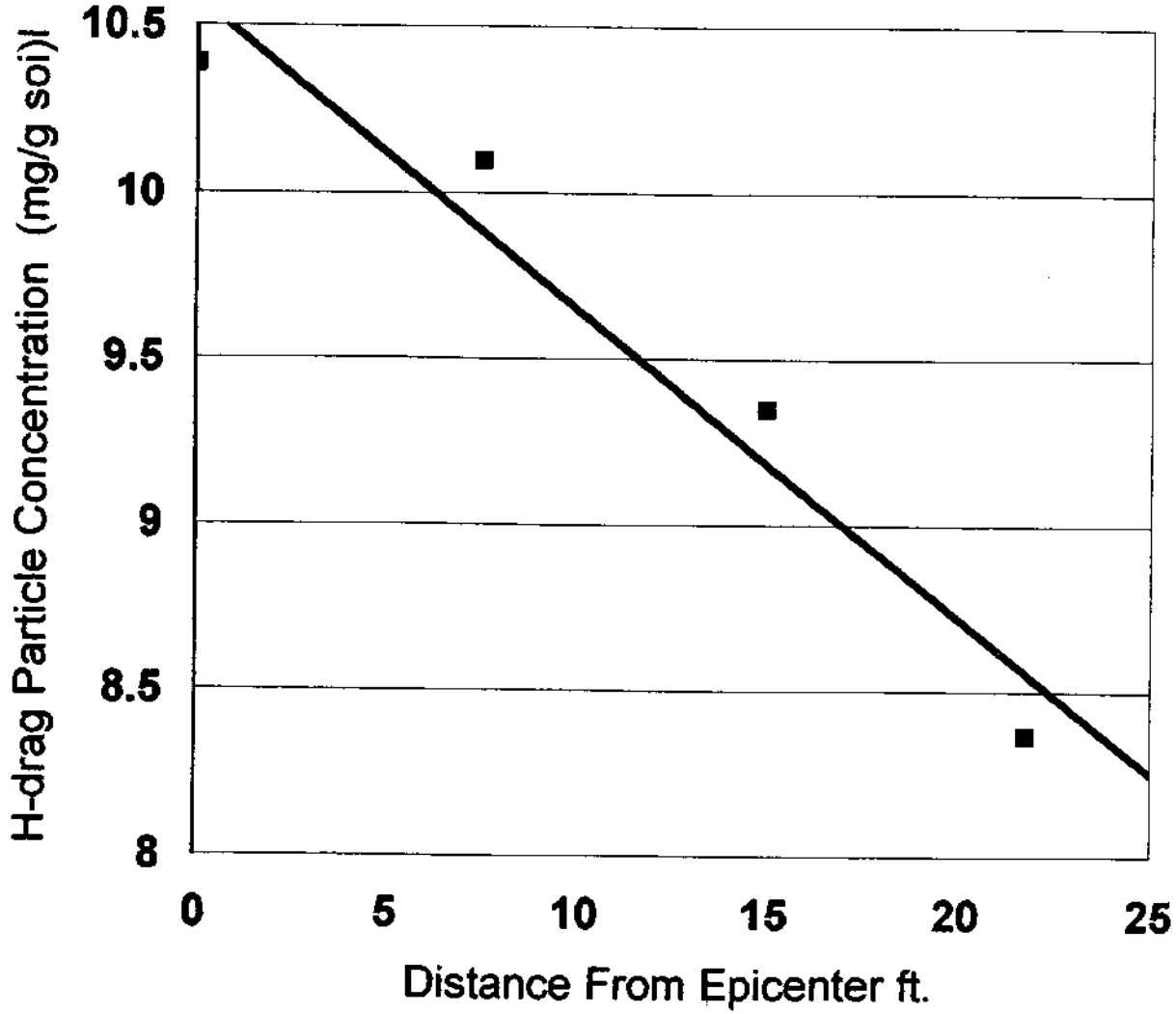


Fig 5


15
10
5
0
H-drag Particle Concentration (mg/g soil)
0
7.5
15
21.25
Distance From Epicenter ft.
Cir.#1 NW
Cir.#1 SE



Circle #2

KS-03-166

R-square = 0.94 # pts = 4

y = 10.6 + -0.0931x

evidence that the influence of the formation energies do not terminate at the visible boundary of the crop formation. The Df response of this proximity control is shown in the upper curve and is diametrically opposite that found in the three controls taken at the 250 ft. locations. This is the first time that adequate sampling diagrams combined with a well thought out collection procedure have provided information relating to the energy distributions outside the visible boundary. It is also interesting to note that the energy producing the growth response appears to be more effective in the outer ring formation (ave. Df from #4, #5 & #6) than the energy within the inner circle (ave. Df from #1, #2 & #3). This increased enhancement in the outer parts of the formation is in accord with what has been observed in a number of other crop circle samples.

Summary:

1) By working with wheat seed samples from the same crop formation as previously submitted to the Pinelandia lab., Mr. Chad Deetken has confirmed and documented the increased seed germination and seedling development in the crop circle material.

2) At his Pacific Research lab., Mr. Deetken has also observed a pronounced increase in growth within formation seedlings, which appears to be related to light stress conditions.

3) A very obvious nutrient stress response was also found in wheat seeds from a 1992 formation in England. This consisted of a growth response which appears to rapidly bring the plant to the autotrophic phase.

4) In a Canadian circle in oats the influence of the crop formation energies were indicated to be effective at a distance of at least 10 ft. outside the visible boundary of the formation.

5) These studies support the contention that more comparative anatomical examinations should be conducted on plant material from geographically diverse crop formations.

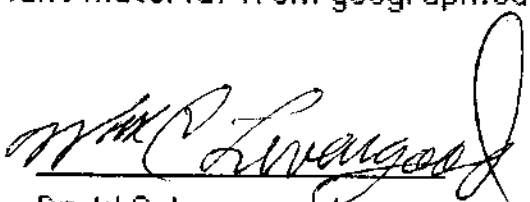


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Fig.3 Plant growth of Albertville test samples after placing under low light level, formation plants on the left. Photograph and test results from Mr. Chad Deetken.

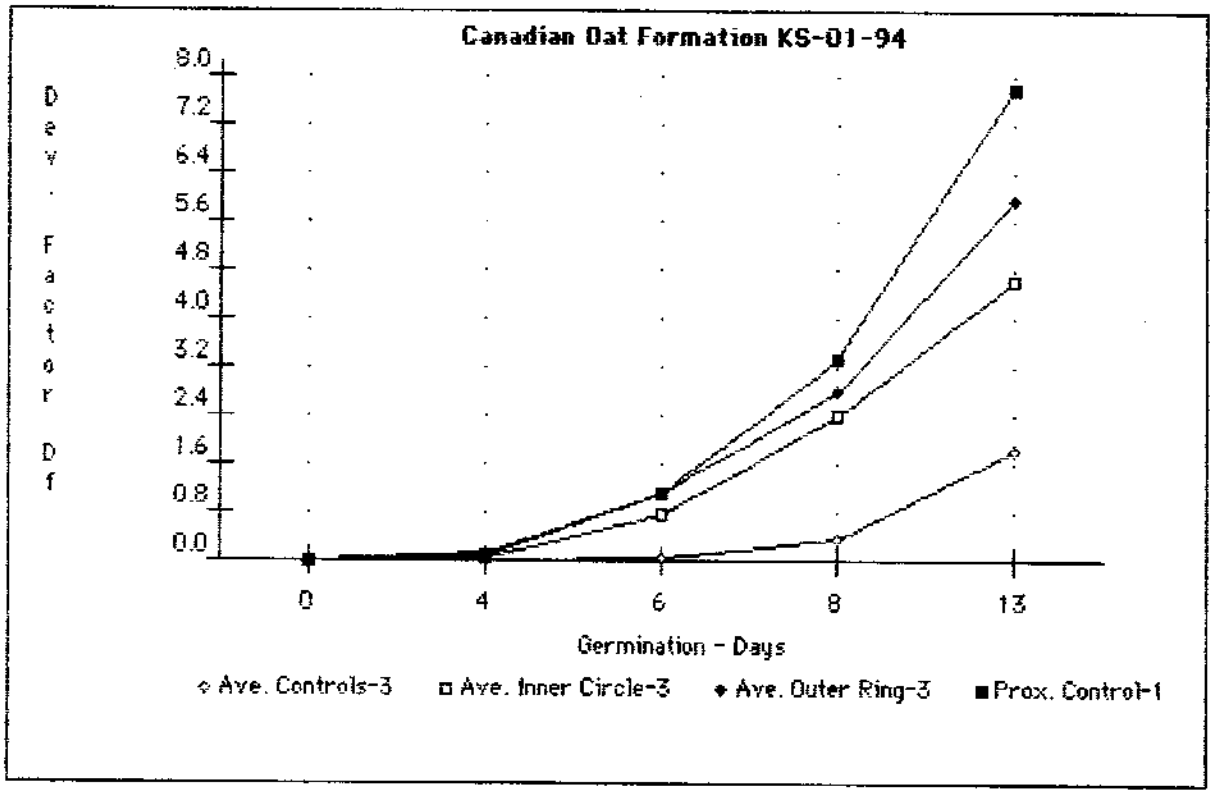
(KS-01-96)

Fig.4 Rapid development rate in seedlings under nutrient stress. Formation at Etchilhampton, England, 1992 (KS-01-100)

Control-C
(single cotyledon)

Formation-B
(cotyledon plus
primary leaf)

Fig.5 Seedling development in Oat Formation, Albertville, Can. KS-01-94



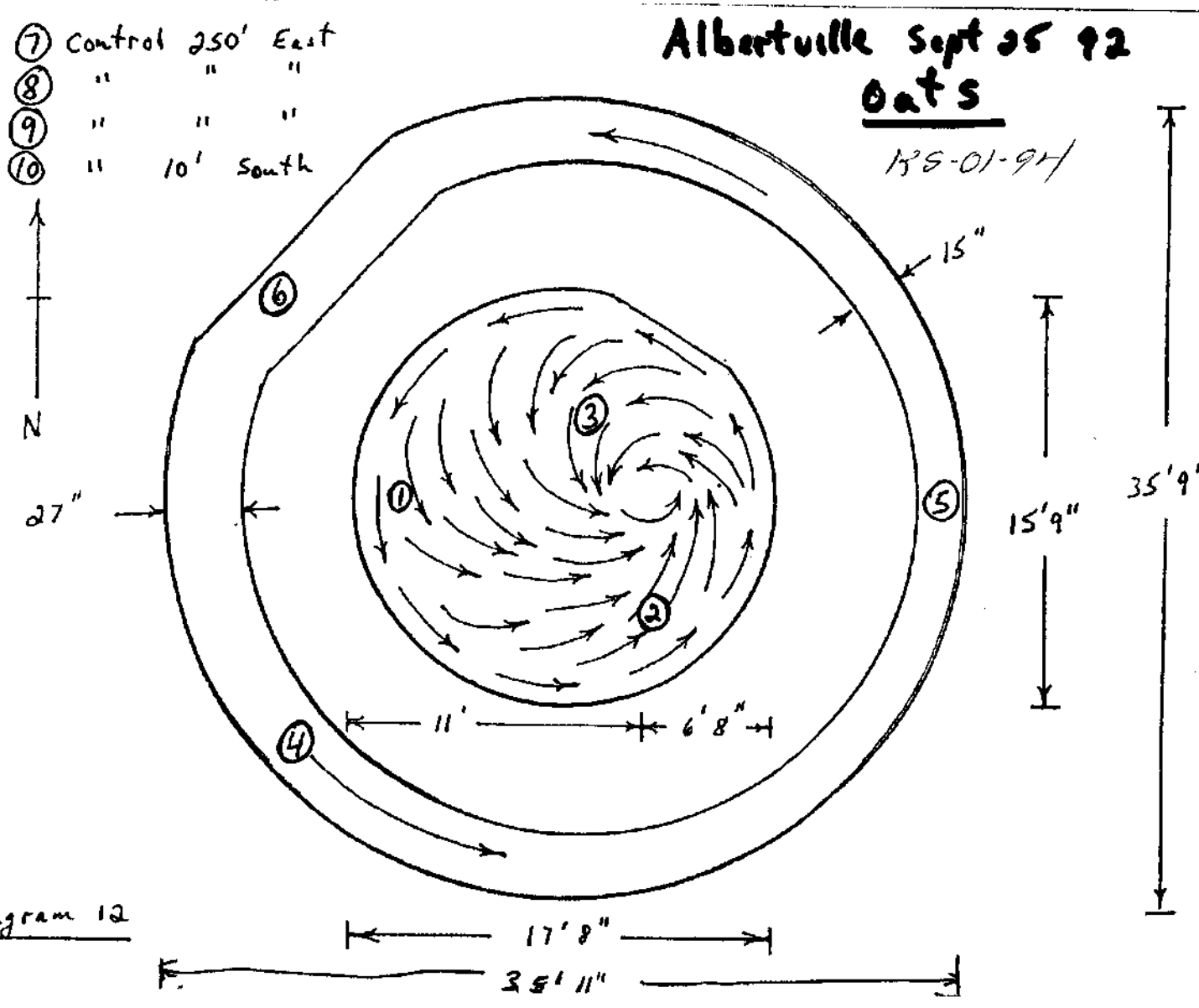


diagram 12