

July 17, 1994

## **RESEARCH REPORT: PINELANDIA BIOPHYSICAL LAB.**

### **LABORATORY Code: KS-01-106**

**PLANT MATERIAL:** Wheat plants and heads. The plants were packed and shipped by Ms. Nancy Talbott, Boston, Mass. (same procedure as discussed in Report #21).

**FORMATION:** Occurred at West Sussex, UK, on June 7, 1993. Sampling conducted by Mr. Barry Reynolds on June 24, 1993.

**COMMENTS:** The detailed sampling diagram shown in Fig.1 was prepared by Mr. Reynolds, and from this one can appreciate the meticulous care taken in the sampling of this formation. This formation includes, by far, the most detailed sampling of any crop circle complex examined in this laboratory. For this reason considerable effort has been expended in the detailed study of these samples taken along the uniform, coordinate transverses. This detailed examination of a large number of sample groups also explains why it has taken so long to report on them.

### **LABORATORY EXAMINATION:**

1.) **STEM NODE EXAMINATION:** Each sample group contained between 6-10 plants. Both node ratios and the degree of node bending was taken at nodes 2 to 4 on each plant. Very significant node bending increases were noted at the node 3 and 4 positions from all the samples within both the main circle and the satellites compared with those taken outside the formations (and of course the controls). The node swelling was also significant at the N3 and N4 positions and this was readily explained by the presence of very active pressure formation within the upper nodes. As previously discussed, the node tissue has visco-elastic properties and does not return to its original shape after the heat expansion.

The previously discussed "expulsion cavities" were extremely pronounced at the N3 and N4 nodes within the plants located in the formations. These expulsion cavities appear to be from a very rapid build up of significant gas pressure within the nodes, during the transient heating phase. This pressure, if sufficiently high, literally blows a cavity

through the cell wall of the node tissue. The severity of this pressure is shown in Fig.2 A; the dark coloration is from fungus and mold attack on the rich exudate blown onto the surface from within the cytoplasm of the cells.

The distribution of this internal pressure is such that in some cases (as shown in Fig.2 B) the cell wall fibers are stretched outward from two expulsion centers. The distribution of these expulsion cavities over the large circle formation is shown in Fig.3 A, where the frequency percentages were averaged over the four coordinate locations. The level in the controls is indicated at the 250-500 bar on the right. Even though the two cavities found in the controls were much less prominent than those in the formations, and did not have the mold blackening, they were included in the analyses.

Cavity levels in the three satellite samples (Fig.3 B) were somewhat higher than those in the large circle. This would be in accord with a higher energy density within the secondary instability products from a plasma vortex. The very sharp boundary of these energy formations is indicated in Fig.3 A, by the pronounced drop in cavity frequency between the 32 ft. (inside) and 35 ft. (outside) locations in the large circle.

2.) OSCILLATION TESTING (BRACT TISSUE)- the DSC, verification tests have been conducted on this sample group; however, the equally time consuming data analyses have not been carried out. Since there are very obvious morphological and development differences it was decided not to delay reporting on this sample set.

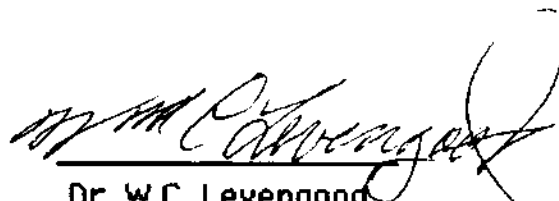
3.) SEED GERMINATION AND SEEDLING DEVELOPMENT FACTOR Df-the germination and seedling growth results summarized in Fig.4 and Fig.5 provide clear evidence that the formation energies have suppressed seed germination and seedling growth to a very significant degree. Every sample within the 32 ft. radius in all four coordinate directions have negative Df values (chance expectation less than 1:1,000,000), some reaching 100% reduction (zero growth).

This energy effect on the seeds is not unexpected since the formation occurred in the early part of June 1993, in fact it agrees with data from other formations. This agreement also extended to seed weight changes. In Fig. 6 are growth data from the satellite formations compared with their seed weights. Although this is not a tight correlation it again demonstrates that the formation energy can greatly suppress seed development and subsequent plant growth.

**COMMENTS ON DATA:**

If one takes the coordinates of maximum growth reduction within the large, central circle and plots them on polar coordinates drawn according to the compass directions, there is, as shown in Fig.7, an indication of a spiraling energy around the epi-center. The form of this spiral suggests the possibility of a high component of electrons within the vortex. The inset at the bottom right in Fig.7 (taken from "The Fourth State of Matter" by B. Bova, St. Martins Press., London, 1971) illustrates possible trajectory schemes based on particle charge.

The Lorentz force on a plasma with a somewhat vertical trajectory through the earth's magnetic field, would direct it into a spiral type of formation. Although the pattern in Fig.7 is purely conjecture on our part, it should be kept in mind that this is the first analysis in which sufficient samples were available for observing even a rough pattern of influence from the crop formation energies and forces.



Dr. W.C. Levengood  
Pinelandia Biophysical Lab.

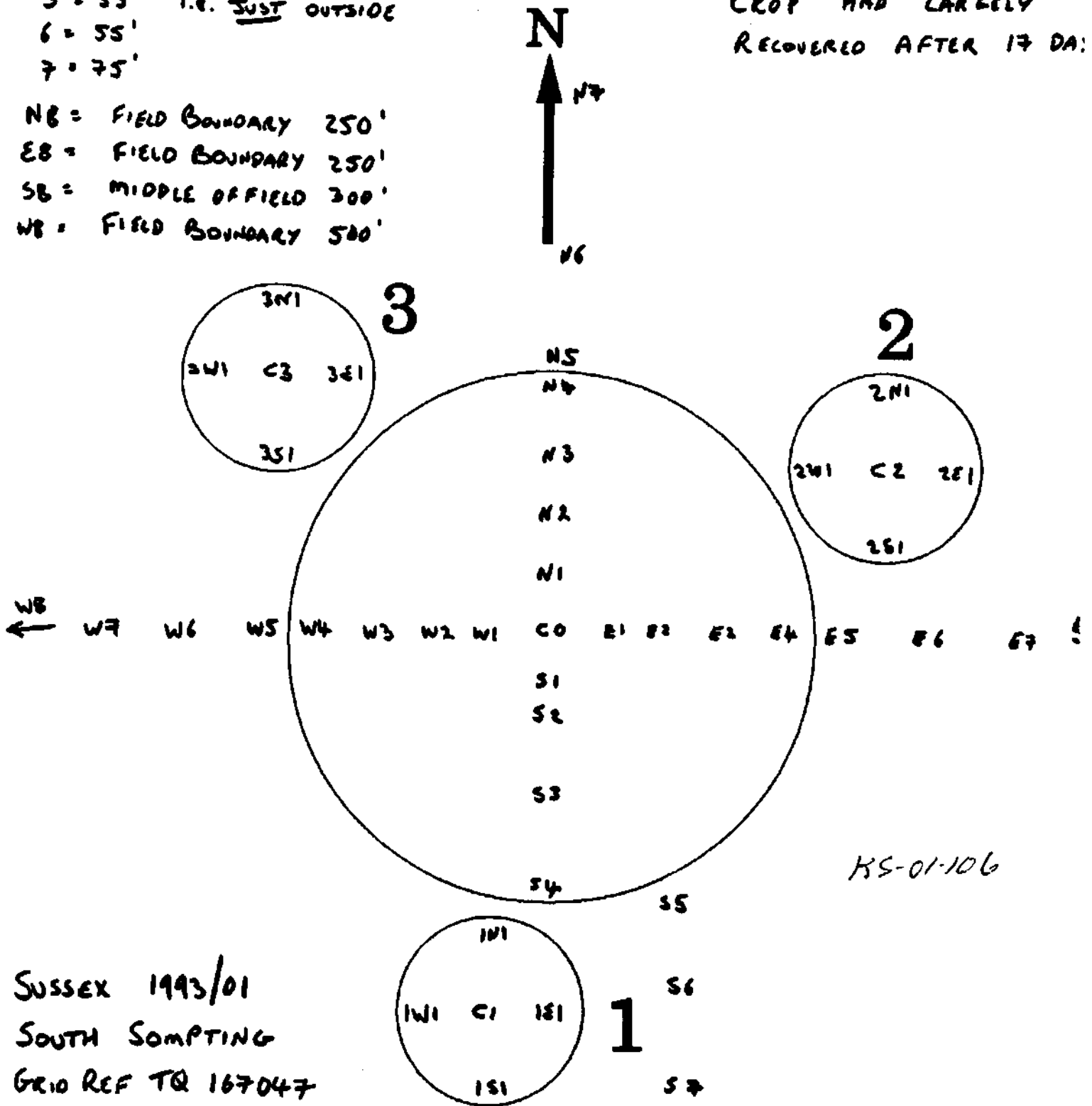
DISTANCES FROM CO TO SAMPLE:

- 1 = 6'
- 2 = 16'
- 3 = 24'
- 4 = 32' i.e. JUST INSIDE
- 5 = 35' i.e. JUST OUTSIDE
- 6 = 55'
- 7 = 75'

- NB = FIELD BOUNDARY 250'
- EB = FIELD BOUNDARY 250'
- SB = MIDDLE OF FIELD 300'
- WB = FIELD BOUNDARY 500'

FORMED: 7/16/93  
 SAMPLES TAKEN: 24/6/93  
 BENT NODES IN SAMPL  
 ARE DUE TO PHOTOTRAPS  
 CROP HAD LARGELY  
 RECOVERED AFTER 17 DA:

Fig.1



SUSSEX 1993/01  
 SOUTH SOMPTING  
 GRID REF TQ 167047  
 LARRY REYNOLDS  
 CCCS SUSSEX

Fig.2 Examples of severe expulsion cavities in apical nodes from crop formation KS-01-106

(A)



(B)

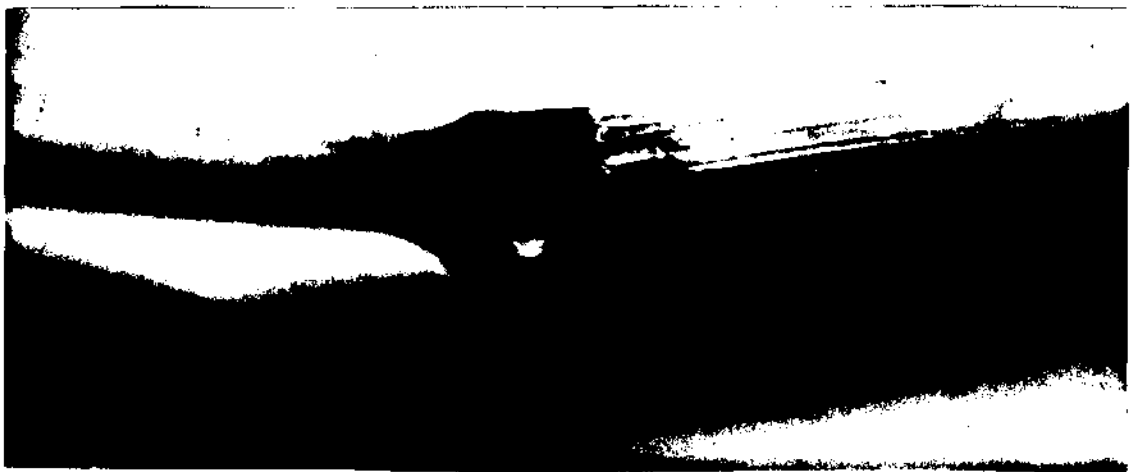
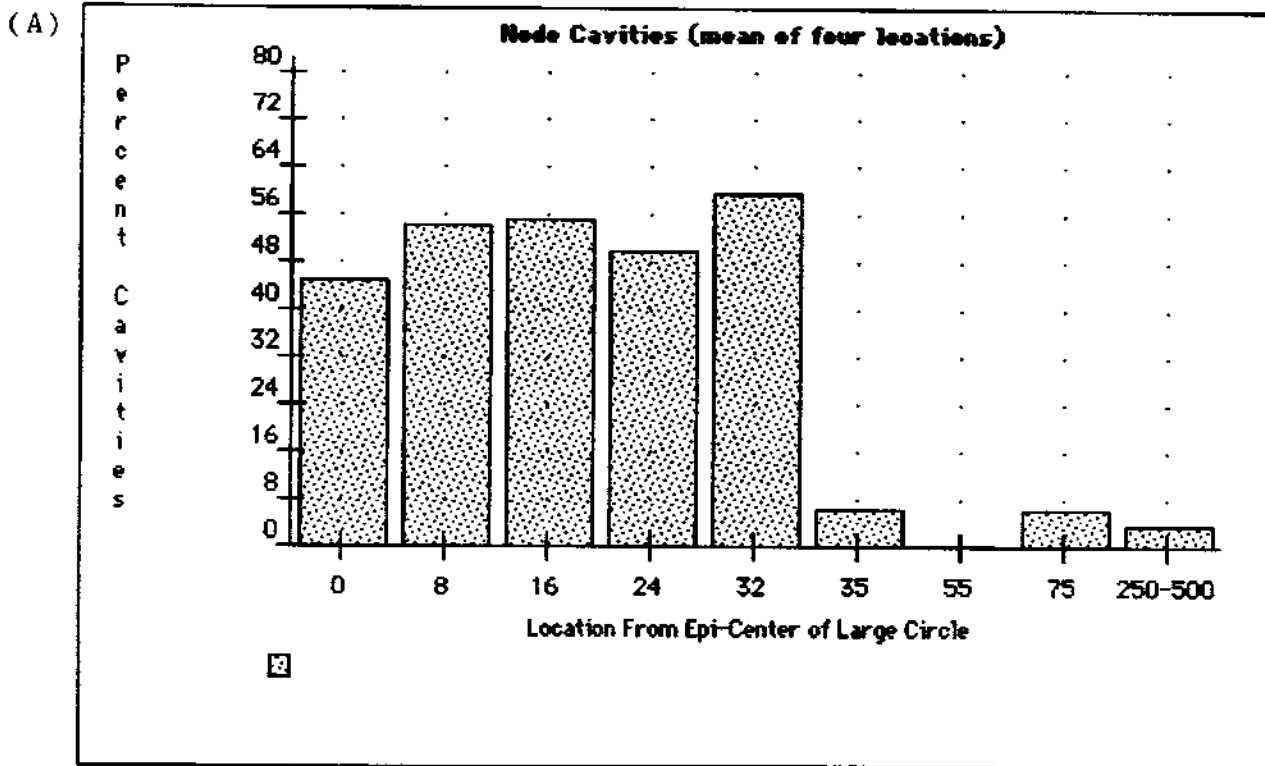


Fig.3 Distribution frequencies of expulsion cavities in large circle (A) and satellites (B).



(KS-01-106)

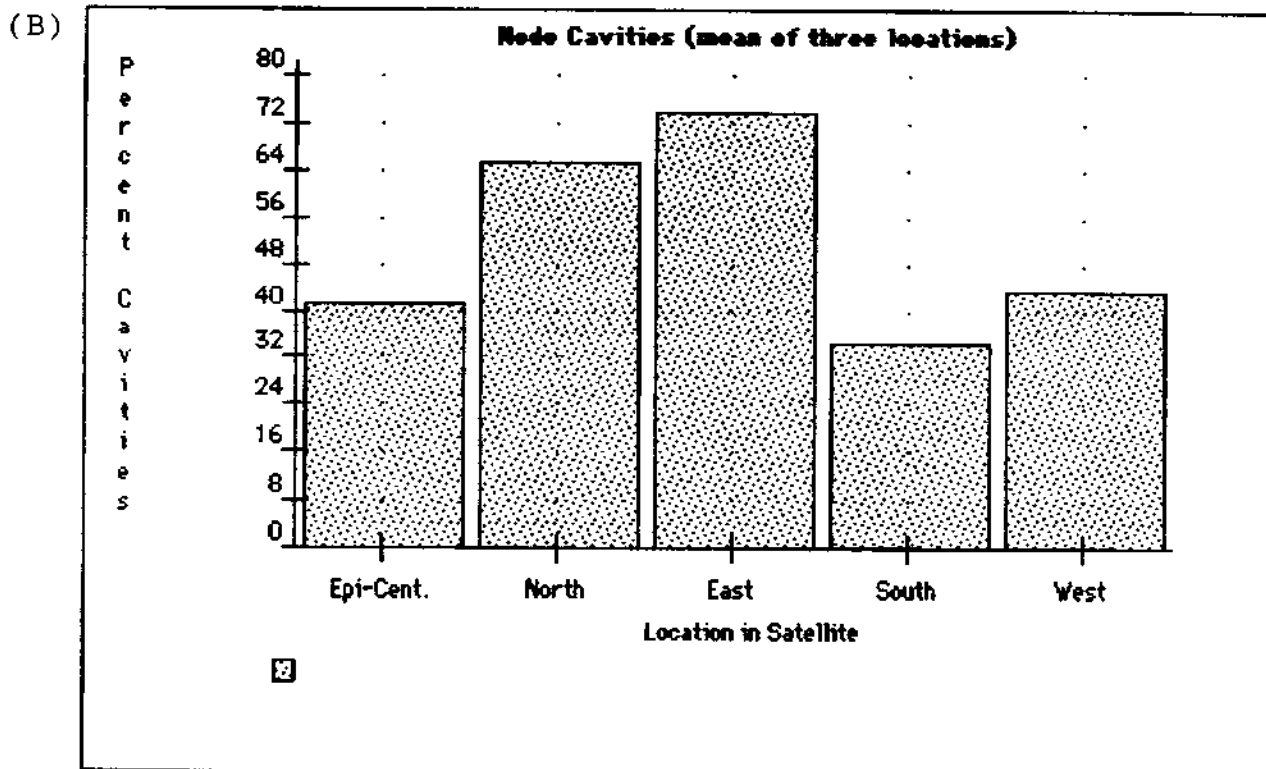
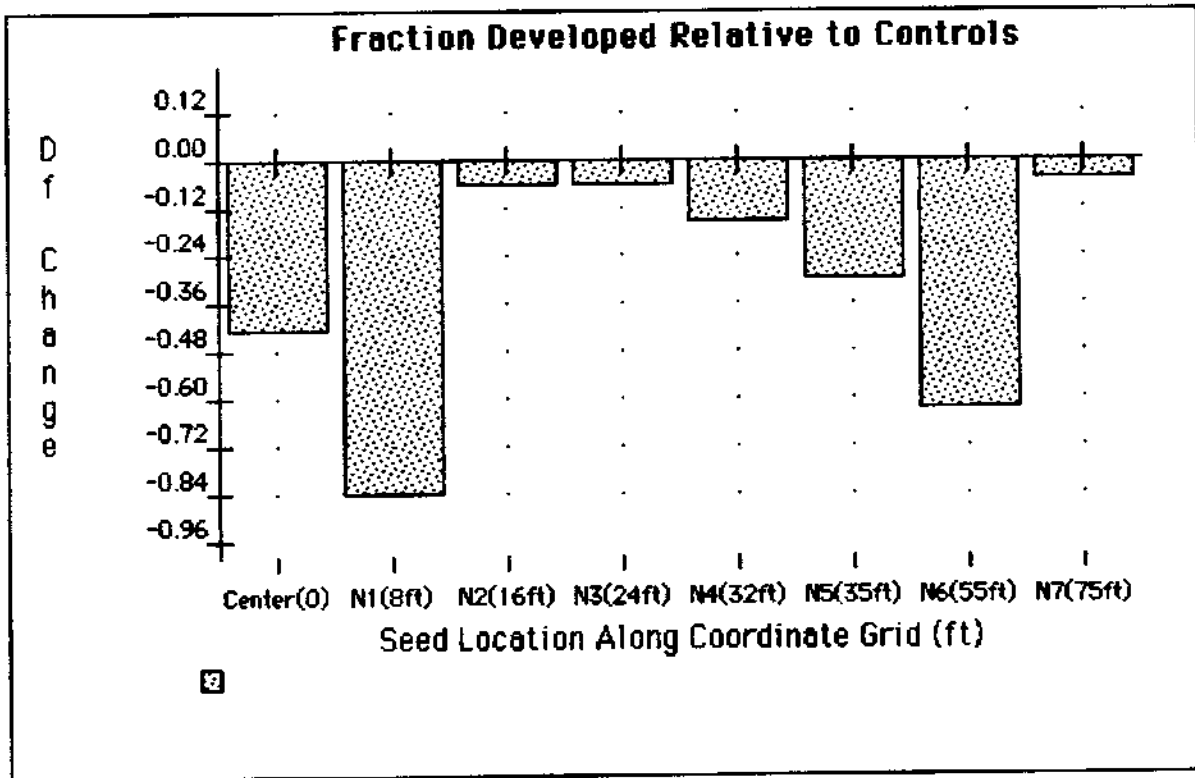


Fig.4 Seedling development from North (N) and South (S) sampling coordinates in large circle.



(KS-01-106)

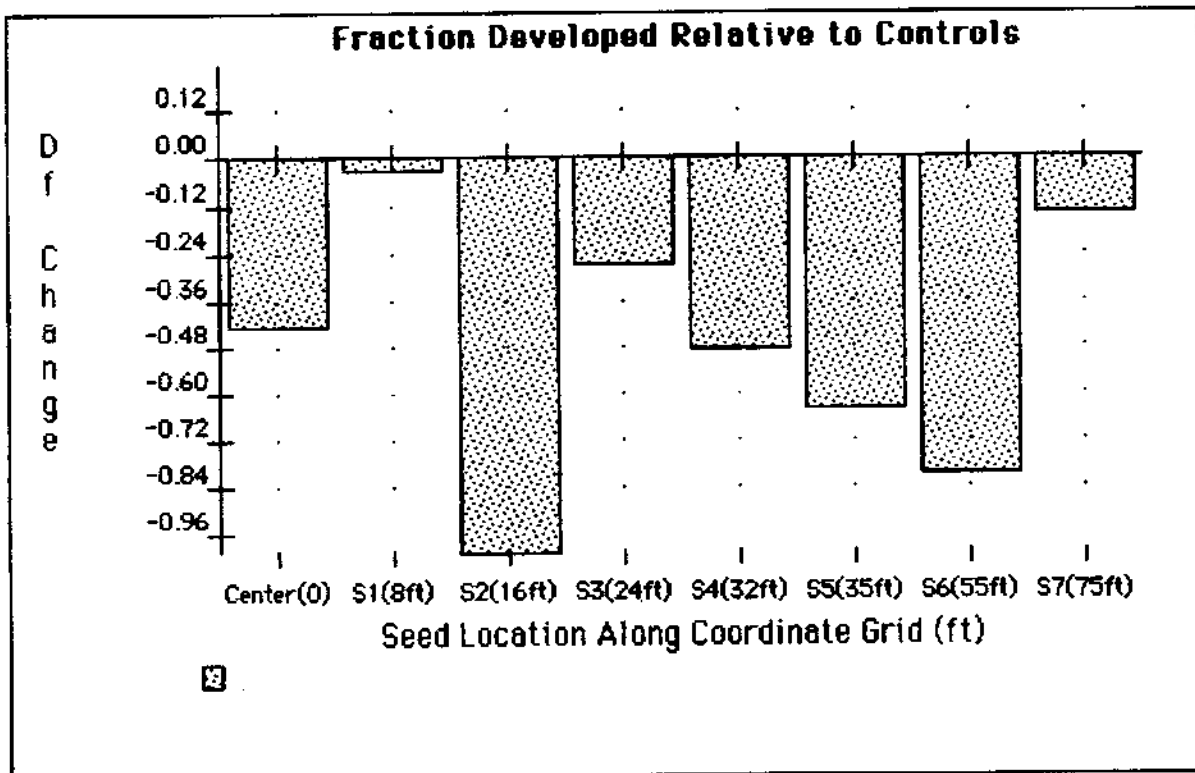
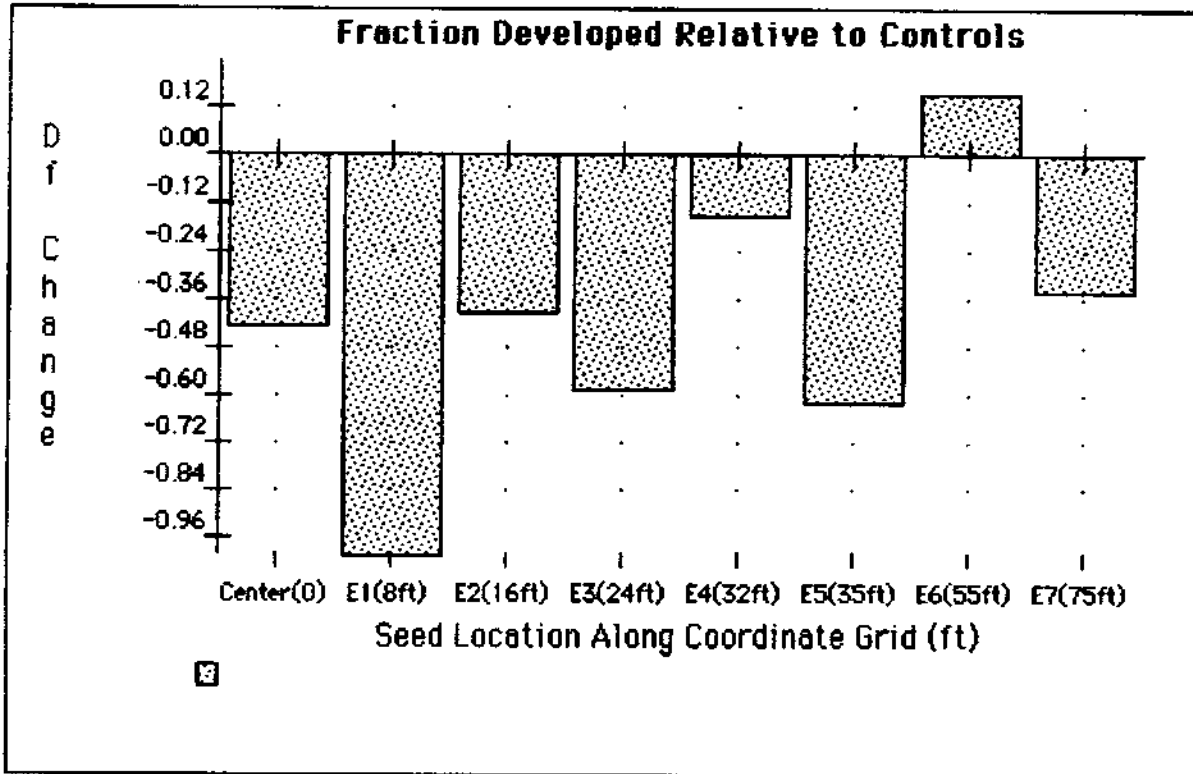


Fig.5 Seedling development from East (E) and West (W) sampling coordinates in large circle.



(KS-01-106)

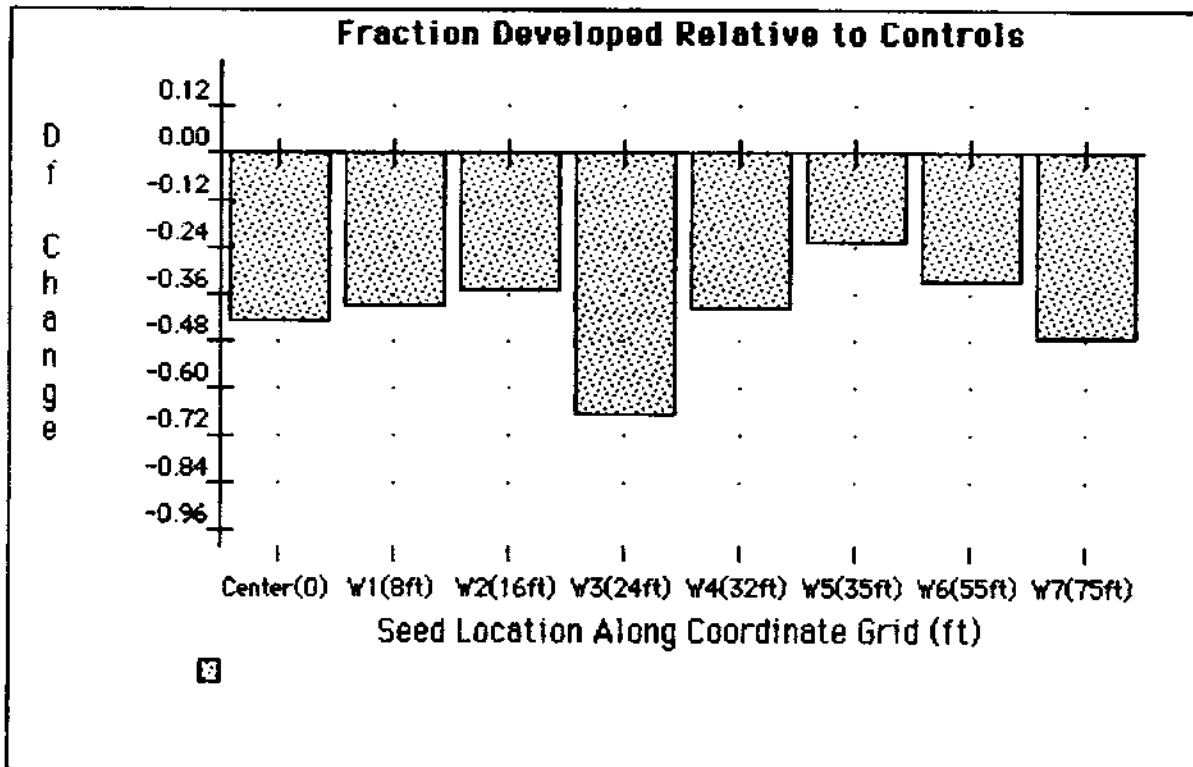




Fig.6 Relationship between seed weight and the resulting plant growth in satellite formations.

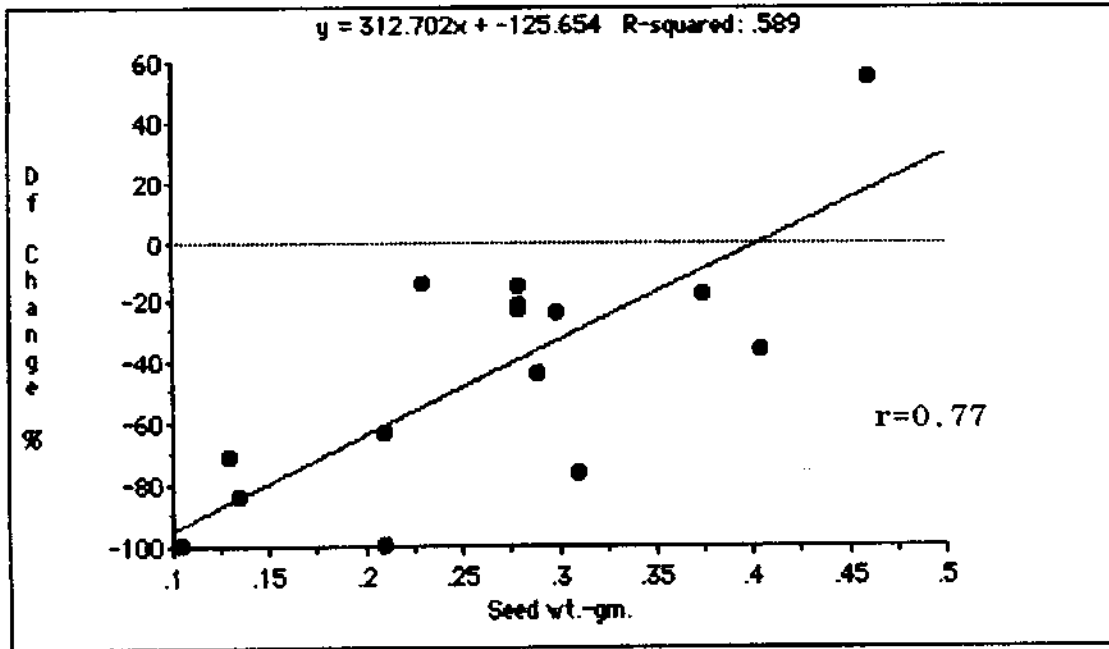
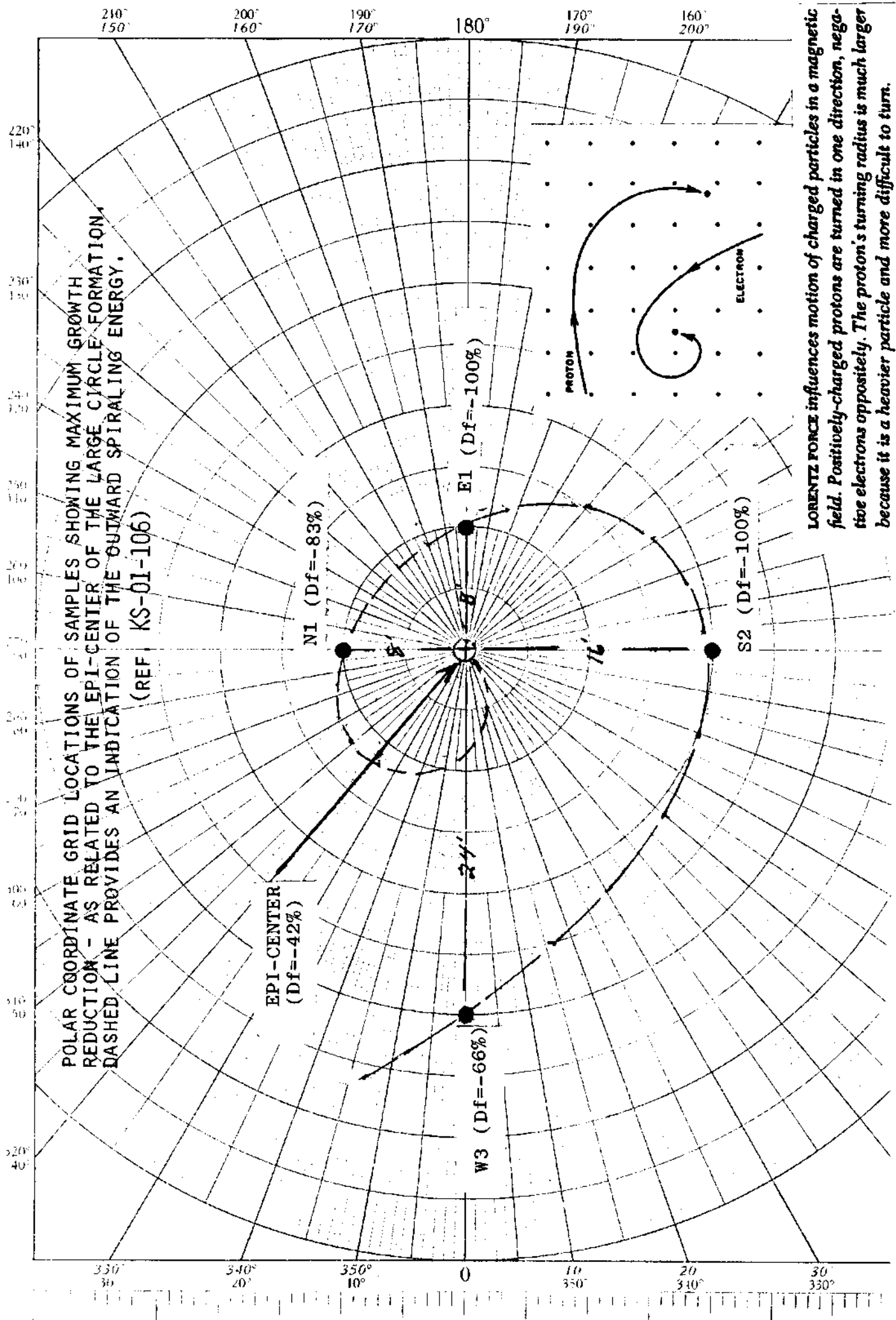


Fig. 7



POLAR COORDINATE GRID LOCATIONS OF SAMPLES SHOWING MAXIMUM GROWTH REDUCTION - AS RELATED TO THE EPI-CENTER OF THE LARGE CIRCLE FORMATION. DASHED LINE PROVIDES AN INDICATION OF THE OUTWARD SPIRALING ENERGY.

(REF. KS-01-106)

LORENTZ FORCE influences motion of charged particles in a magnetic field. Positively-charged protons are turned in one direction, negative electrons oppositely. The proton's turning radius is much larger because it is a heavier particle and more difficult to turn.