

## **Crop Formation: Inmann, Kansas, 1995**

### **Laboratory Code: KS-03-12**

Material: Wheat stems and heads, (*Triticum aestivum*)

Formation: Appeared near Inman, Kansas around June 20, 1995 (exact date not reported) Two circles with connecting path and an "L" path.

Sampled: by Ms. Stace Tussel, around July 7, 1995. For detailed maps and ancillary information contact Ms. Stace Tussel, 1414 West Street, Emporia, Kansas 66801; (316) 342 3192

### **Laboratory Results:**

In Fig.-1A are the summarized results from detailed analyses of the node lengths in sample groups containing between 11 and 18 plants each. The analyzed data are superimposed on Ms. Tussel's diagram. The alterations in the node lengths are shown as a percent change relative to the two control samples (\*8 and \*9). The percent change in node length is given for both the apical (A) and penultimate (P) positions on the plant. The particular location from which the samples were taken is indicated by the dashed lines. The presence of a (\*) symbol indicates that the data are statistically significant at the  $P < 0.05$  level of confidence.

Routine germination tests were conducted with seeds from all of the eight sample groups, with seedling heights taken at 4, 7 and 12 day growth periods. With the exception of sample #4 taken at the center of the small circle, there were no significant growth differences between the seedling growth rates in the controls and formations samples. In Fig.1B are 12-day growth seedlings from the sample #4 plants showing not only higher growth rates but greatly reduced variance in the seedling heights compared with the controls shown in Fig.1C (compare sd values).

### **Comments:**

As our data and information accumulates it is interesting to note that there are emerging patterns of node changes and seedling vigor, which are common to formations previously analyzed. For example, the significant node expansions(Fig.-1A) occurred at the edges of both circles. In many other formations from Canada, UK and here in the United States, we have noted that the most pronounced node expansion is at the edge regions of the formations. This of course is not always the case, as for

example those demonstrating the Beer's Law relationship, with the energy concentrated at the center of the formation. From the data collected so far it appears that about the only way one can determine the distribution of the transient, high heat energy is through the stem node length analyses.

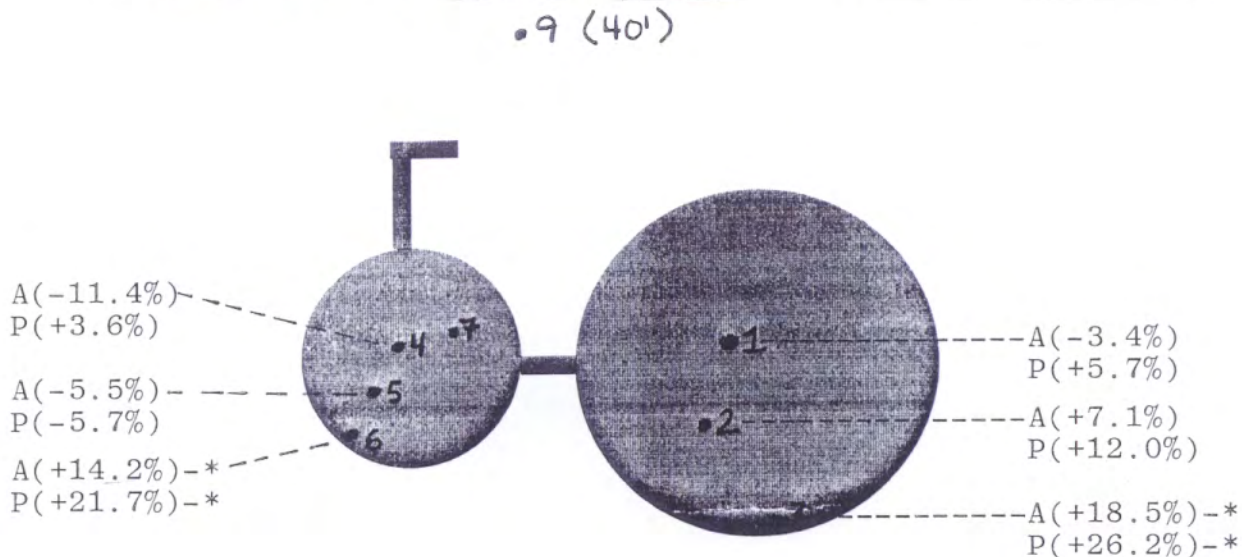
On the surface it may appear confusing to the reader that the maximum stem node expansion occurs at the edge of the formations whereas the induced growth effect in the seeds takes place at the epicenter region (Samp. #4). What we are seeing here is the result of induced effects from two different types of energy contained within the plasma vortex system. One energy type, an electrophoretic process producing the growth response, and the other the transient heating which results in the node expansions (as discussed in *Physiologia Plantarum* 92, pp.356-363, 1994).

As a final comment, it should be pointed out that the node expansion data obtained in the apical (A) nodes are very consistent with those data obtained from the penultimate (P) nodes. In sample #3 and #6 both the A and P nodes are significantly expanded. Incidentally, the minus (non-significant) percentage values are to be expected from normal statistical variations.

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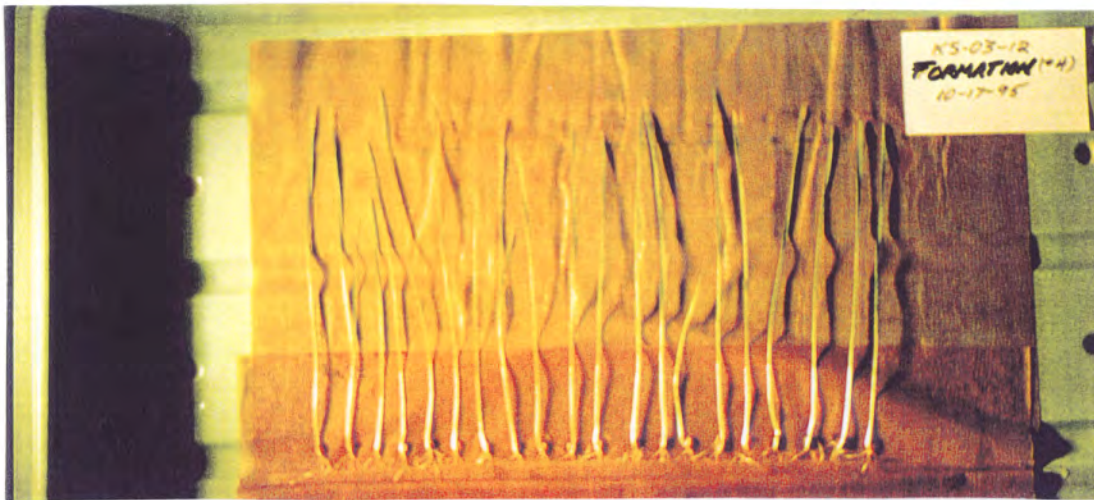
Fig. 1A Change in stem node length relative to controls (KS-03-12)  
 A-apical node; P-penultimate node (\*= P<0.05)



8.  
(150')

Small Circle - 11.9 Metres N-S, 11.3 Metres E-W. Large Circle - 20.7 Metres NW-SE, 19.5 Metres NE-SW.  
 Connecting Path - 4.4 Metres E-W. L-Extension - 5.8 Metres North, 3.3 Metres East.

B. Formation-#4  
 12 day growth  
 ht 16.11 sd 2.28  
 P<0.05



C. Control-#8  
 12 day growth  
 ht 12.40 sd 4.32 cm

