Crop Formation: Sunset, Oregon USA, 1994

Laboratory Code: KS-02-27

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

Formation: on June 14, 1994 and samples taken June 24, 1994-approx. 50 ft. circle with an outer ring, and outside of this four equally spaced satellites.

Sampled: by Carol Pederson, 20075 SW Imperial Street, Aloha, Oregon 97006. Second set of samples submitted by Mr. Matt Navarro,4036 N. Montana Ave., Portland, Oregon 97227.

Laboratory Results:

A sketch of the site and sampling locations was prepared by Ms. Pederson and is included here as Fig.1, attached. Both the Pederson and Navarro sample sets were included in the laboratory analyses.

Detailed studies of node expansion were conducted in accord with our usual laboratory procedure. Analyses of the node expansion data disclosed that there was no correlation between the degree of expansion and the location within the formation (the data did not fit Beer's law). It was clearly established, however, that all the formation plants had significantly expanded nodes compared with the controls. Since all segments of the formation disclosed significantly expanded nodes, the data from all formation material (and from both sets of samples) were combined, the same thing was done with all the control samples.

In these data sets were 90 node length (N1) values from the formation and 47 control plants. All data were from the apical or N4-node position. In order to graphically demonstrate the pronounced difference between the controls and the formation plants, frequency distribution analyses were conducted. The results of these analyses are shown in Fig.2 at the end of this report. The "Bar#" given along the abscissa shows the number of nodes having a length (in mm) falling within this interval. For example in the upper chart of controls, the Bar #3 shows over 35 samples ("count" along the ordinate) with node lengths falling within the range of 3.0 to 3.9 mm.

The pronounced node expansion is obvious when comparing the upper with the lower data set from the formation. A chart of the statistical data for these frequency diagrams is presented in Fig.3 and when we

compare the mean values of NI for the two sets we find that the formation nodes have been expanded by 60% compared with the normal controls. Because of the large number of samples examined, the probability of this occurring by chance alone is less than one in ten thousand. In addition to node expansion the formation plants contained expulsion cavities at about the 20% level, whereas none were found in the control plants.

Germination studies disclosed that the formation apparently occurred at the stage where the embryos had not completely developed. The germination rates in both controls and formation seeds, were slow and erratic, therefore no conclusions can be made regarding an influence on the embryo development.

Conclusions:

This is a very clear cut case of severe node expansion in the formation plants. The severity seemed to be uniform throughout the large circle and the satellites. Frequency histogram analyses provide a means for graphic presentation of these differences.

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N
W — E
S

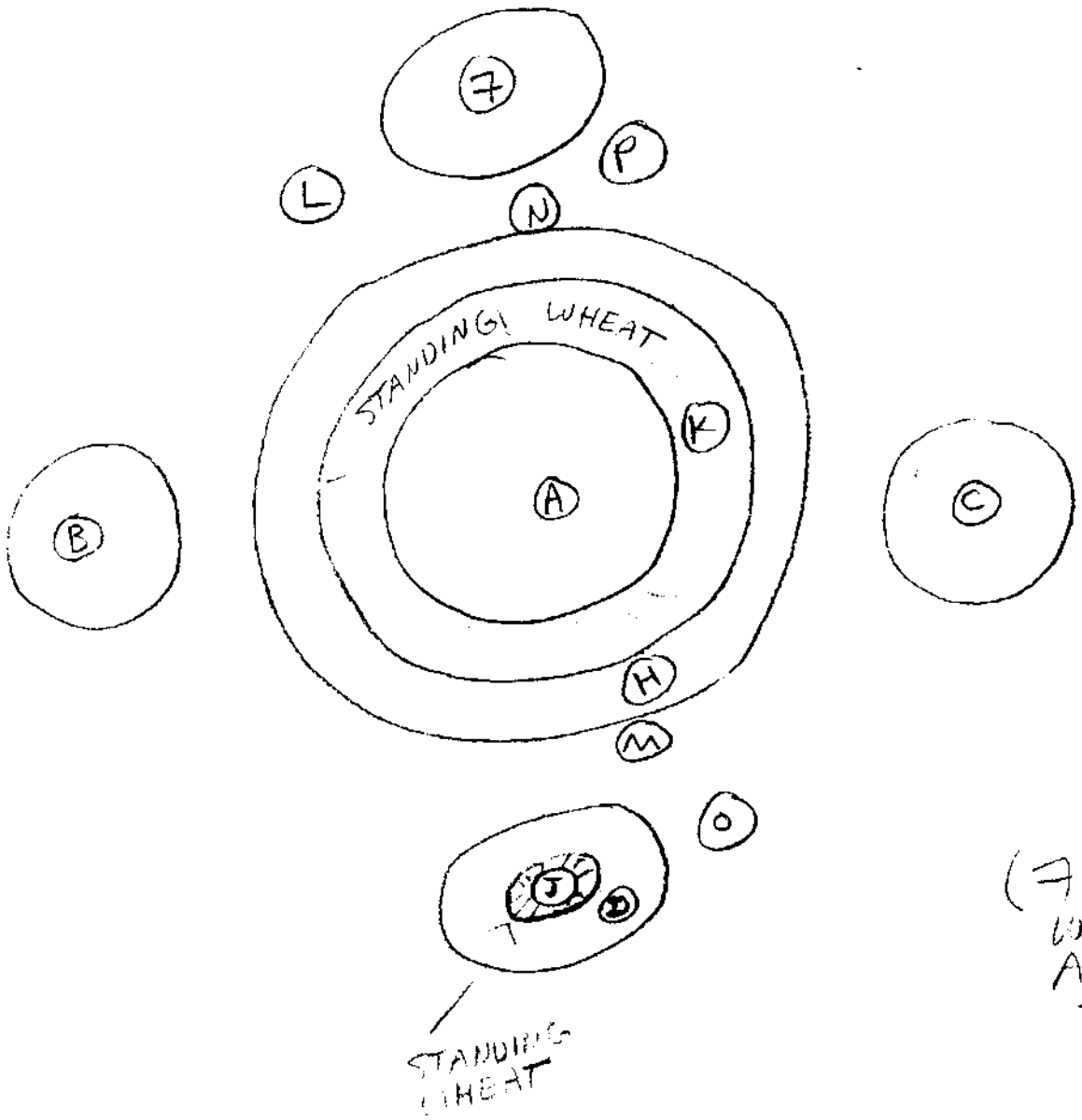
Fig. 1

SUNSET FORMATION

MAP OF SAMPLES LOCATION

Eugene

(G) ↑ 30 FT. FROM NORTH SATELLITE



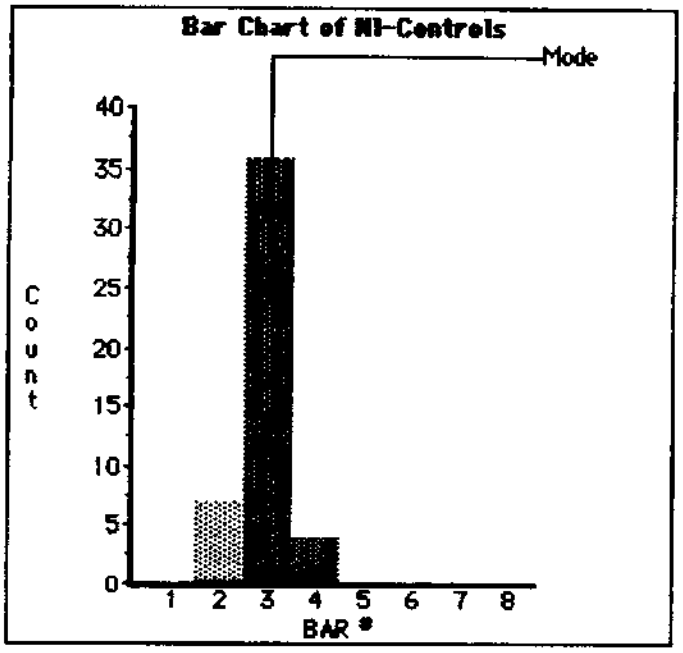
(FIELD WHEAT ALL AROUND FORMATION

STANDING WHEAT

(E) ↓ 30 FT FROM S. SATELLITE

(I)

Fig.2 Frequency distribution analyses of node lengths (N1) in Sunset, Oregon crop formation KS-02-27



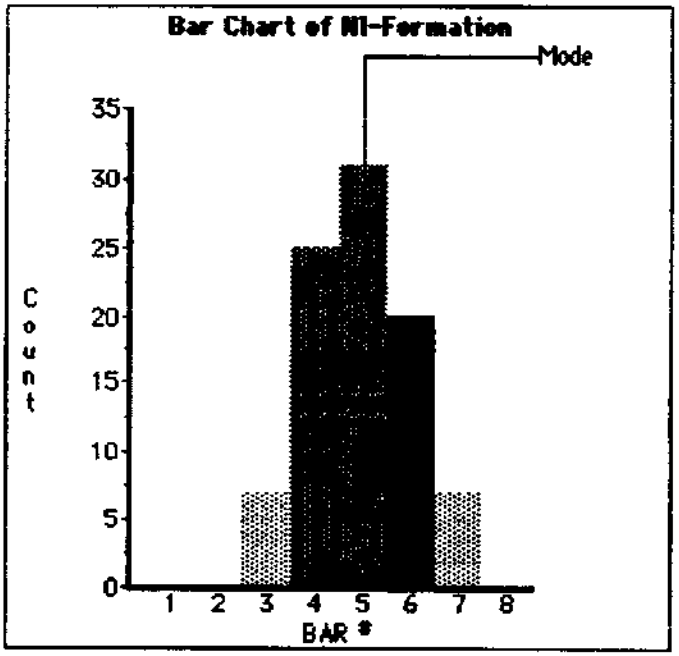


Fig.3 Node length statistical data in Sunset, Oregon crop formation KS-02-27

NI-Controls

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.32	.401	.058	.161	12.069	47
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum Squared:**	*** Missing:**
2.5	4.2	1.7	156.03	525.371	43
Kurtosis:	**Skewness:**				
-.258	.047				

NI-Formation

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
5.324	.951	.1	.904	17.854	90
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum Squared:**	*** Missing:**
3.3	7.4	4.1	479.2	2631.9	0
Kurtosis:	**Skewness:**				
-.523	.044				