Triplet Circle Formation: UK, 1994

Laboratory Code: KS-02-112

Plant material: Wheat plant stems and seed heads, *Triticum aestivum*

Formation: Three circles in same field, (1)-11 m dia., formed late June, (2)-12.5 m dia., formed early July and (3)- 17 m dia., formed late July. See attached sketch by Mr. Horn.

Sample Information: Collected by Mr. Anthony Horn, 23 Sea View Drive, Scarborough, N Yorks, YO11 3HY, England, on Aug. 19, 1994, at Leconfield, North Humberside.

Laboratory Results:

Most of the sampling was conducted in the large, 17 m formation and when examining the data in detail, reference should be made to the attached sampling diagram. The node length data taken at the apical or N4 position, are listed as follows.

Mean Node Length (N1) - mm --

Sample	Ave.	sd	N
S-1	4.86	0.93	8
S-2	3.02	0.87	9
S-3	4.42	0.60	12
S-4	3.62	0.44	11
S-5	2.97	0.64	9
S-6	4.03	0.52	12
S-7	3.53	0.60	11
S-8	5.53	0.30	7
S-9	4.83	0.89	8
C-1 Cont.	3.18	0.63	12
C-2 Cont.	2.94	0.55	9
C-3 Cont.	3.20	0.37	7
C-4 Cont.	2.99	0.71	8
C-5 Cont.	3.09	0.46	8

Again we observe highly significant node expansion in many of the formation samples when compared with the controls. It should be noted that all of the five control sets have a relatively narrow range of mean node lengths.

The usual seed germination tests were conducted and data taken at various stages of seedling growth. Data are presented in Fig. 2, showing a direct relationship between the degree of node expansion and the 8-day seedling growth from samples taken in the 17 m formation. Since many of the formation samples disclosed both node splitting and expulsion cavities, indications of high energy inputs, it is not surprising that the developing seeds are adversely affected.

Comments:

Perhaps it should be pointed out that the absorbed radiation principal (Beer's Law) was not examined since we need radially sampled material for this type of study. Even though the sample collection in the 17 m formation was taken circumferential, the data still disclosed very useful information which corroborates previous studies indicating an effect of the energies on the seed heads. These energies were also very apparent in the smaller diameter circles, as evidenced by the pronounced node expansion in the S-8 and S-9, epicenter samples.

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AS-08-112

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Fig.1

ANTHONY HORN

SAMPLED 19TH AUGUST 19

FORMATION DATE UNKNOWN -
(ESTIMATED MID-LATE JULY 1
EARLY JULY (2)
LATE JUNE (3)

LOCATION: LECONFIELD,
NEAR BEVERLEY,
NORTH HUMBERSIDE.
OSGR: TA 011 436

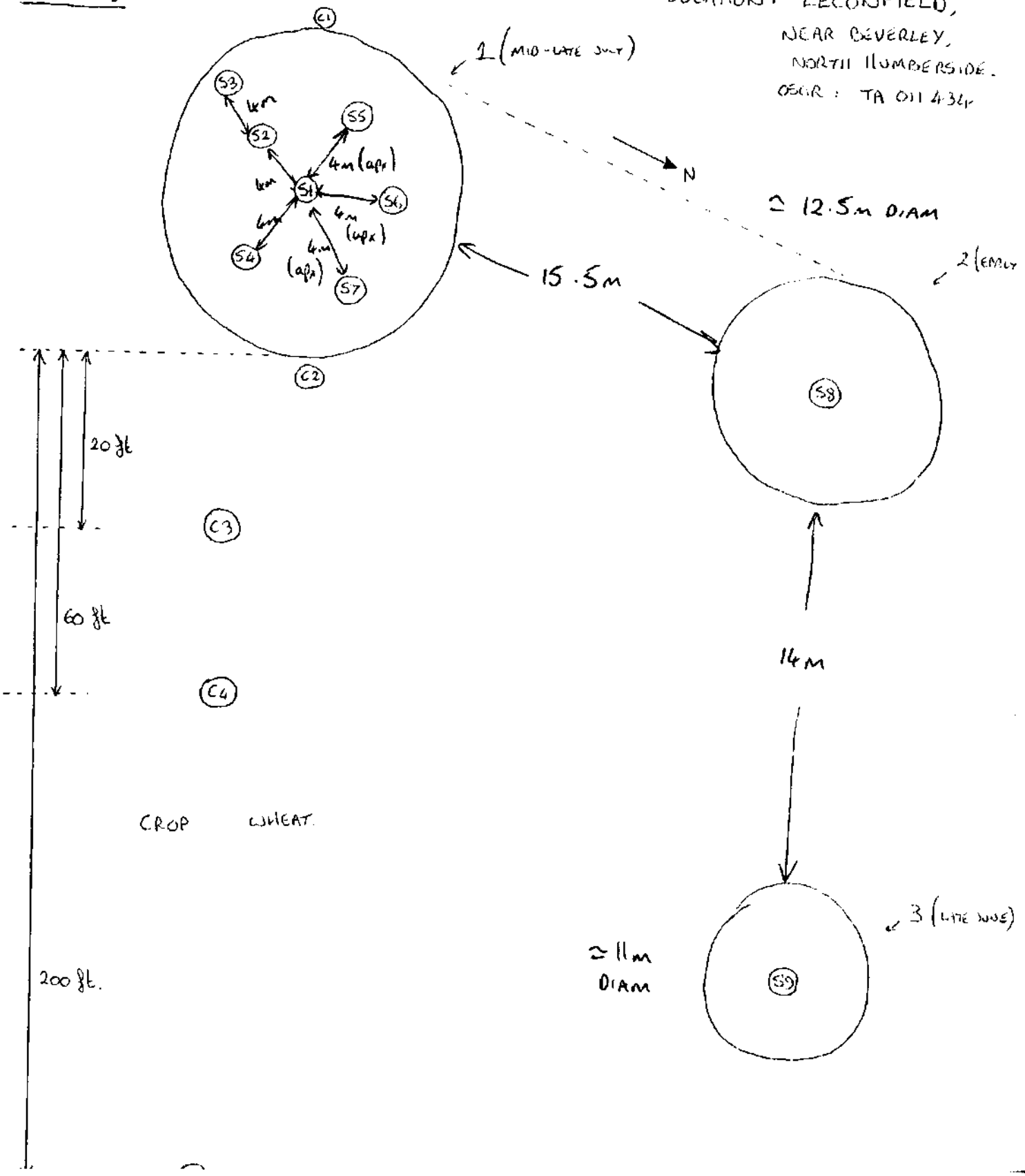

Fig.2 Inverse relationship between node expansion and viability of seeds at sample sites in the 17 m circle shown at the left in the photograph from Anthony Horn.

(KS-02-112)