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Lab. Report # 102 June 7, 1999 Pinelandia Biophysical Lab.

CROP FORMATION: STAR, IDAHO - 1998

Laboratory Code: KS-04-80 Event Location: Star, Idaho

Material Sampled: Wheat heads and stems, soil

Date Formed: (? July 20-23, 1998)

Date Found: 7/23/98

Date Sampled: 7/23/98, by Ike Bishop, Marty Brown, Dennis Gramm

Formation Characteristics: Partial circle with standing ring and 3-pronged

"key," approx. 200 ft. overall length.

RELEVANT FINDINGS:

 biochemical (redox ratio) tests indicate moderately significant alterations in respiration activity in germinating seeds sampled at center of formation (probable mitochondria damage);

- (2) seed germination tests provided confirmation of the redox findings (reduced seedling vigor in formation samples) and also indicated an energy-spillover effect;
- (3) soil samples contained increased amounts of magnetic material;
- (4) plant stem nodes revealed no significant changes.

RESULTS AND DISCUSSION:

Redox studies (which test for evidence of mitochondrial damage) were conducted with control seeds from outside the formation and sample seeds from inside the formation; see Fig. 1 for Field Sampling Diagram. The test sequence results from the two control sample sets (@ 150 and 300 ft. outside) and one sample set from the center of the formation are summarized in Fig. 2. [Additional redox tests revealed no significant results.] In Fig. 2 we find the usual low redox responses (expected from mature germinating seeds) in the control seeds; the relatively high peaks in the curve from the formation seeds (sample 1) indicate a minimal-to-moderate degree of mitochondrial damage, resulting in the observed abnormally high output of damaging free radicals.

Precision germination tests supported the findings from the redox test, revealing a reduced seedling vigor in the germinating formation seeds. One sample (sample 16), taken from standing plants in the "V" region of the formation, also disclosed a reduced vigor, suggesting an energy-spillover effect in the standing crop in this area.

The redox and germination test levels are marginal; additional control sampling would have provided more substantial data.

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A total of 23 soil samples (each containing 40-120 gms. of soil), taken within and outside the formation were examined for magnetic material. Most samples had significant increases in amounts of magnetic particles in the soil, the levels exceeding in every case the maximum amount of such material which is found in normal soils (0.4 mg/g-soil). The weighed amounts of magnetic particles found in these samples are shown in Fig. 3 as circled numbers, in mg/g-soil. Although there is no apparent pattern of magnetic particle disposition within this formation, this finding is typical of other events studied. The fact that above-normal amounts of magnetic material were also found outside the visible downed-crop boundaries of the formation is also consistent with our past findings in other crop formations exhibiting deposits of magnetic material in the soils.

Microscopic examination of the magnetic material revealed that it was composed of small spherules and irregularly-shaped particles of putative(1) magnetite. There was an abundance of soil grains with adherent chunks of this material which, in general appearance, was very similar to the Nampa, Idaho 1998 formation as well as material examined from many other formations submitted to this laboratory for examination.

The redox and seed germination test results, in combination with the presence of significantly increased amounts of magnetic material in the soil, indicate the presence of an active, unstable vortex energy system as a causative agent in this crop formation; more extensive control sampling, and at greater distances away from the event, would have enabled a more substantial conclusion.

W.C. Levengood Pinelandia Biophysical Lab. Nancy Talbott Cambridge, MA

John A. Burke Pro-Seed Technologies

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⁽¹⁾ Levengood, W.C. and Burke, John A. 1995. "Semi-Molten Meteoric Iron Associated with a Crop Formation," <u>J. Sci. Exp</u>. (9:2), 191-199.

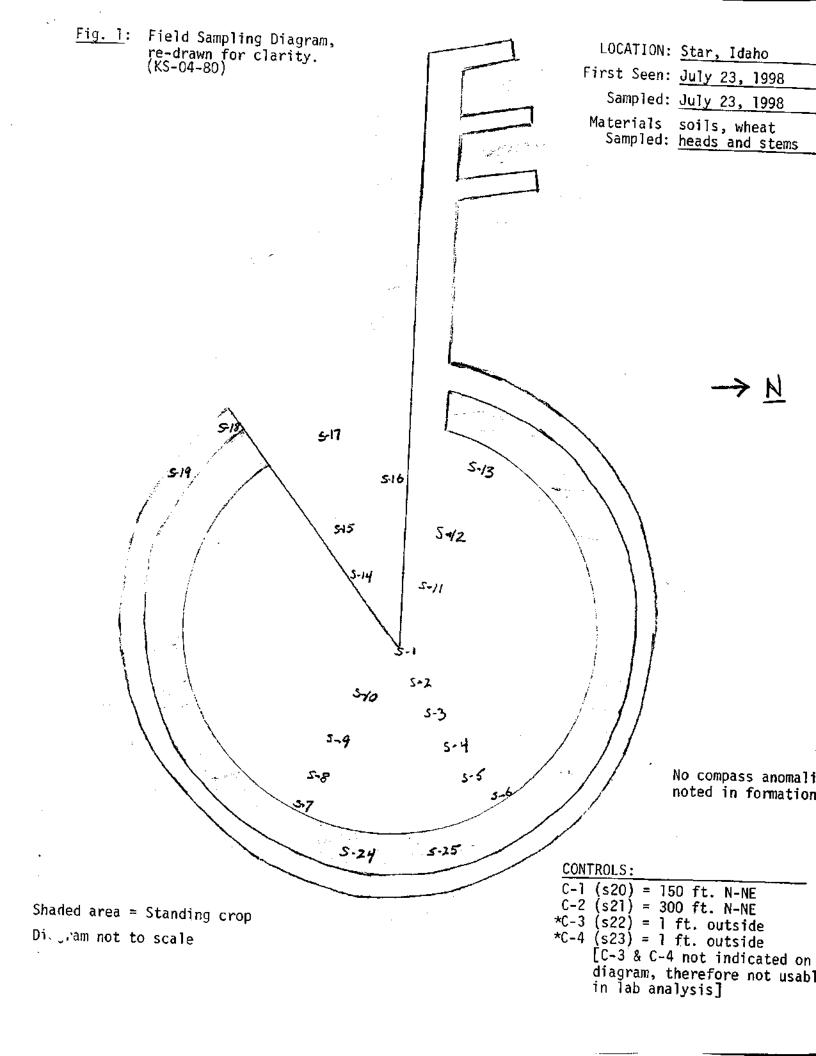


Fig. 2: Redox Ratio Variations Between Control & Sample Seeds from Star, Idaho Crop Formation (KS-04-80).

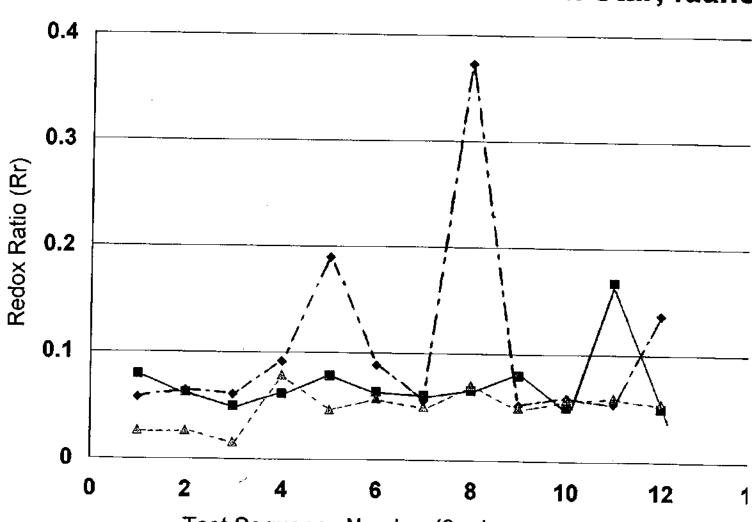
The redox ratio shows relative levels of anions (negatively-charged ions) to cations (positively-charged ions) in germinating seeds; shown here are 12 test sequences, read at 6-minute intervals (72 minutes total), for the two available control sets and Sample I from the center of the downed-crop area. The low, relatively synchronous redox responses in the control sets are typical of normal seeds while the larger peaks in the curve from the Sample I formation seeds indicate some degree of mitochondrial damage.

= Sample 1 (downed crop, center or formation)

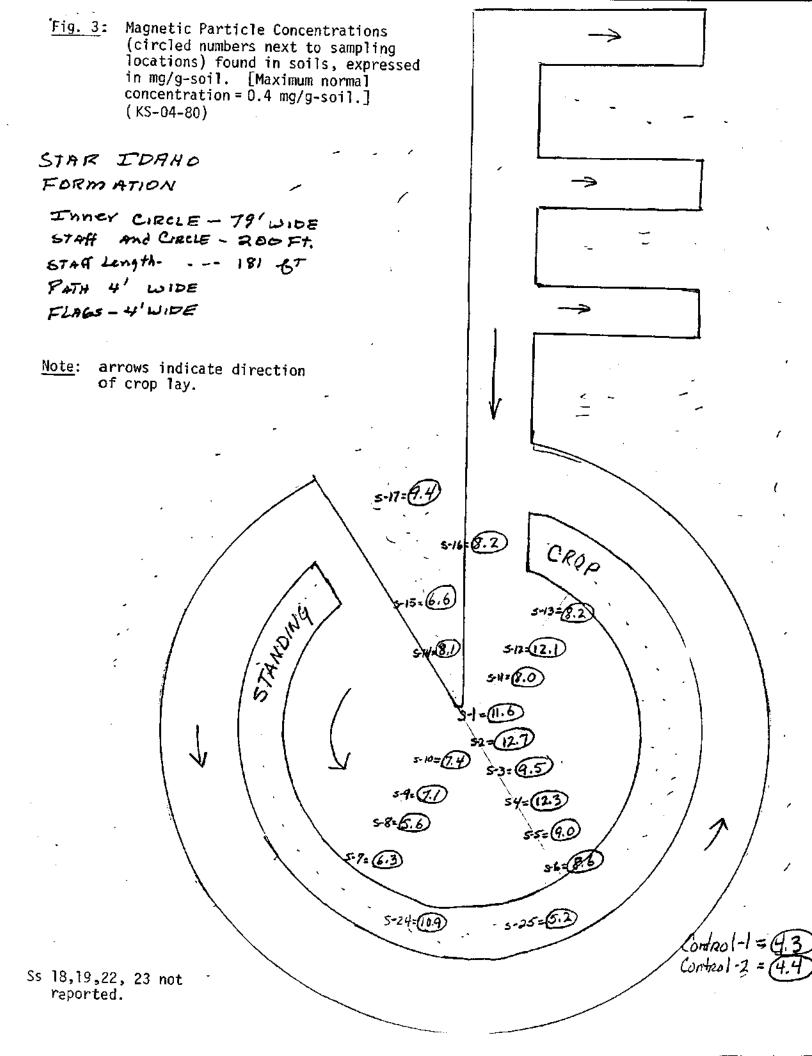
△= Control 1 (standing crop, 150 ft. N-NE of formation)

■= Control 2 (standing crop, 300 ft. N-NF of formation)

Redox ratio variations in seeds from Star, Idaho



Test Sequence Number (6-min. per sequence)



July 23, 1998 Star, Idalio

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Top photo: aerial view, by Dave Rule. <u>Bottom photo</u>: aimed east, looking down long pathway into center-circle area; note lay of crop where pathway intersects main circle area (photo: Marty & Paula Brown). Wheat plants/soils

