Research Report from Pinelandia Biophysical Laboratory
Grass Lake, Michigan 49240

February 9, 2003

Crop Formation: Montour, Iowa 2002
Laboratory Code: KS-05- 137

Location: Montour, Iowa
Material: Soybean (*Glycine max*) plants with seed-pods; soil in and around formation.
Formed: Aug. 9, 2002
Sampled by: Beverly trout and assistants, on 9-1-02 and 9-2-02
Formation Characteristics: Circles and paths (see attached diagram as Fig. 1)

Summary of Findings:

Reported here are new findings, which disclose that not one, but two major energy effects can produce anomalous alterations in the growth and development of plants and seeds within crop formations. In general, these energy effects are somewhat temporally dependent

1) – Immediate Expressions from Vortex Energies ---
These include – either downed or upright plants with significant node expansion, expulsion cavities, somatic modifications and altered plant and seed development.

2) – Long Term Effects ---
Produced by induced changes in the free energy of soil within the crop formation. These free energy transitions takes place within the crystal network of soil particles, which consist primarily of silicates. Current laboratory work suggests that high energy ions (probably negatively charged) enter the crystal lattice and interact with it. In this state they can increase the crystalline nature of the soil (increase free energy) or introduce interstitials (lower free energy).

3) - Mountour Formation - Both Immediate and Long Term Energy Effects ---

Immediate effect – significant reduction in the seed weights from plants sampled within the crop formation. These seed weight changes correlated with free energy changes induced in the soil.

Long Term – using a bioassay test, it was found that plant seedling growth in water containing soil aliquots from the Mountour formation, correlated with free energy changes in the soil samples.

Research Results:

1) Examination of Plant Material-

Because of the very thorough and careful manner in which Ms. Trout and her friends sampled the Mountour formation it was possible to conduct detailed analyses of plant material. Within each of the four circle regions (see Fig. 1), both plant and soil samples were taken at the center and along each of the major radii (N, E, S, W), with five to nine sampling sites within each circle. In addition 23 control samples (plants and soil) were taken at sites from 5 ft. to 480 ft. outward from the formation.

At the time the samples were collected (Sept. 1-2, 2002) the control plants were, for the most part, green, consequently the seeds had not fully matured. From photo's submitted by Ms. Trout, it was apparent that there were two energy components acting within each of the circle formations. There were small regions (approximately 3 x 5 ft.) in which the downed plants were totally brown and dead. Contiguous with these brown plants were similar size areas where the downed plants were still green.

This apparent discrepancy in the maturity of the formation plants, suggests that the plasma vortex energy which hit the field on Aug.9, 2002, was highly compartmentalized. In the brown regions the energy (most probably microwave type) caused complete cessation of development, which around four weeks later was observed to be patches of dead plants. In other regions or "cells" within the same circle formation, less damaging energy components were predominant. These apparent sharp gradients of energies are not uncommon and have been observed in material from numerous crop formations. In fact, there are seven boundary condition energies putatively involved in the formation of a plasma vortex system (see ref. #1). A slight change in any one of these boundary conditions can completely alter both the crop formation geometry and the development characteristics of the plants within its confines.

Although seeds from the control plants and the downed green plants within the formation, disclosed some degree of germination, any differences due to the formation energies were overshadowed by variations in plant maturity. The influences of the plasma energies were however, quite apparent when examining seed weights. The seeds were removed from pods collected at each sampling site. The mean seed weights listed in Table I are combined data from all four circles.

Table I.

Seed weight data from samples collected in the Moutour, Iowa crop formation.

Sampling Region	average	s.d.	N – sites sampled
Controls----	0.161	0.020	22
Circles- green downed	*0.141	0.027	20
Circles- brown downed	*0.039	0.013	18

*- $P<0.05$

In Table I we find significant reduction in seed weight from both the green-downed and brown-downed plants within the circles. The question now arises as to whether there are latent energies within these circles, which might offer further clues regarding factors related to the pronounced differences in seed development.

2) Free Energy Changes Within Crop Formation Soils

Over the past several months, research efforts at the Pinelandia Laboratory, have been directed toward developing a procedure for monitoring the dynamic, self organization of Charge Density Pulses (CDP) in water. This test procedure is based on a modification of a method developed by Levengood and Gedye (ref. 2&3) for examining spontaneous, physiologically related Implicate Energy (or free energy) changes in living organisms.

Since living systems are composed of around 95% water (both bound and free), the rationale for examining crop formation soils for possible, induced free energy changes in water, is more readily understood by considering the collective, anecdotal reports involving the reluctance of animals to enter or even go near crop formations. Reports have been received at this laboratory that flocks of birds have been observed to "fly around" a crop formation. The obvious implication here is that the energies are exerting a strong influence on physiologically related sensory systems in the animals.

More direct evidence for these energy effects has been repeatedly shown in studies with plants and germinating seeds sampled from crop formations and from bovine excision sites. In some crop formations the plasma energies produce highly significant growth increases, while others disclose highly significant growth retardation. The reason for these quite different growth responses is related to the manner in which the initial boundary conditions are organized within the plasma system - as discussed in the preceding section (and in ref. #1). Because of the highly complex nature of these organized plasma systems the direct influence on the plants and soil can only be determined empirically.

Data are presented, indicating that ion plasma energies which produce crop formations, do indeed alter the free energy of the soil. Furthermore, when aliquots of these crop formation soils are placed in water they were found to induce free energy changes in the water. In this chain of events the "energized" water can in turn alter the development characteristics of plants and growing seedlings.

Briefly, the procedure used to examine these free energy changes in these soil-water test samples, consists of adding an aliquot weight of 100 mg soil to 20 ml of pure water contained in a CDP-petri dish system (ref. 2 &3). Each soil test series is initiated around 9:00A (lab. time) and repeat CDP traces (lasting 30 sec.) are taken at 10 min. intervals over a period of around three hours. These data are examined with statistical, regression analyses to determine the degree of change in the crop formation soils, relative to control soil taken outside the formation.

By using the above protocol we find that the soil-induced changes in the water, take place at a relatively constant rate, over a period of several hours . The rate constant (k) obtained from the regression analyses, can be taken as a measure of the quantitative CDP changes in the water, as induced by the crop formation soil. The question then arises as to whether the soil-altered water could have any physiological influence during the initial imbibing and active water uptake in plants and seeds.

A bioassay type of protocol was utilized to examine the possibility that these interactive factors influence the active development of plant seedlings. In any bioassay, one uses biological test material, which has given consistent results when examined under carefully controlled conditions. In this case wheat seeds (*Triticum aestivum*) were used in a procedure defined as a "paper roll germination". The seeds are positioned in a horizontal row near the upper edge of special germination paper - using 30 seeds per roll. Each roll is placed in an 8 oz. vial containing 100 ml water plus 100 mg of the test soil – one vial designated the control, has no added soil.

In this type of test it is possible to use what is defined as a Seedling Development Factor (Df). With this factor, one is able to take into account and compare each sample for both the fraction of seeds germinated as well as the seedling size or growth length. This factor is given by the simple relationship;

Df = (fraction germinated) x (average seedling length)

In Fig.2 are rate constant (k) data from five soil samples taken within the Montour, Iowa crop formation (plus a control), plotted as a function of their seedling development (Df) at the five-day growth stage. The correlation coefficient of $r = 0.83$ provides clear evidence that crop formation soils contain free energy capable of inducing significant growth changes in developing plants; the higher the energy input (increasing negative k values) the greater the reduction in seedling vigor and development. Furthermore, the plasma induced soil changes appear to be quite stable over time. For example, in the Montour case, the soil samples were collected about one month after the formation appeared on Aug. 9, 2002. Subsequently the laboratory investigations, particularly those involving the soil tests, were completed in early January of this year. This means the influence of the plasma induced, soil energy was still apparent five months after the crop formation occurred. From this, it is not unreasonable to postulate that the persistence of these soil energies may explain the subtle, visual outline of a crop formation within the same field and identical in shape and location to one formed the preceding year.

The findings from the bioassay test summarized in Fig 2 suggest that the seed weight changes in the Montour formation should also be related to the initial level of energy input from the plasma energies. To examine this possible relationship the seed weights from plants taken at the same sites as the five soil samples discussed in Fig. 2 are examined in Fig.3 in relation to the CDP rate constants. Although there is considerable scatter in the data ($r = 0.75$) a similar trend of energy influence on the development of plant material in the crop formation, is apparent. This is an example of an immediate influence of the crop formation energies.

References:

1) W.C. Levengood & N.P. Talbott, *Dispersion of Energies in Worldwide Crop Formations*. Physiologia Plantarum 105, 615-624 (1999)

2) W.C. Levengood and J.L. Gedye, *Evidence for Charge Density Pulses Associated with Bioelectric Fields in Living Organisms*, Subtle Energies & Energy Medicine, **8**, pp 33-54 (1998).

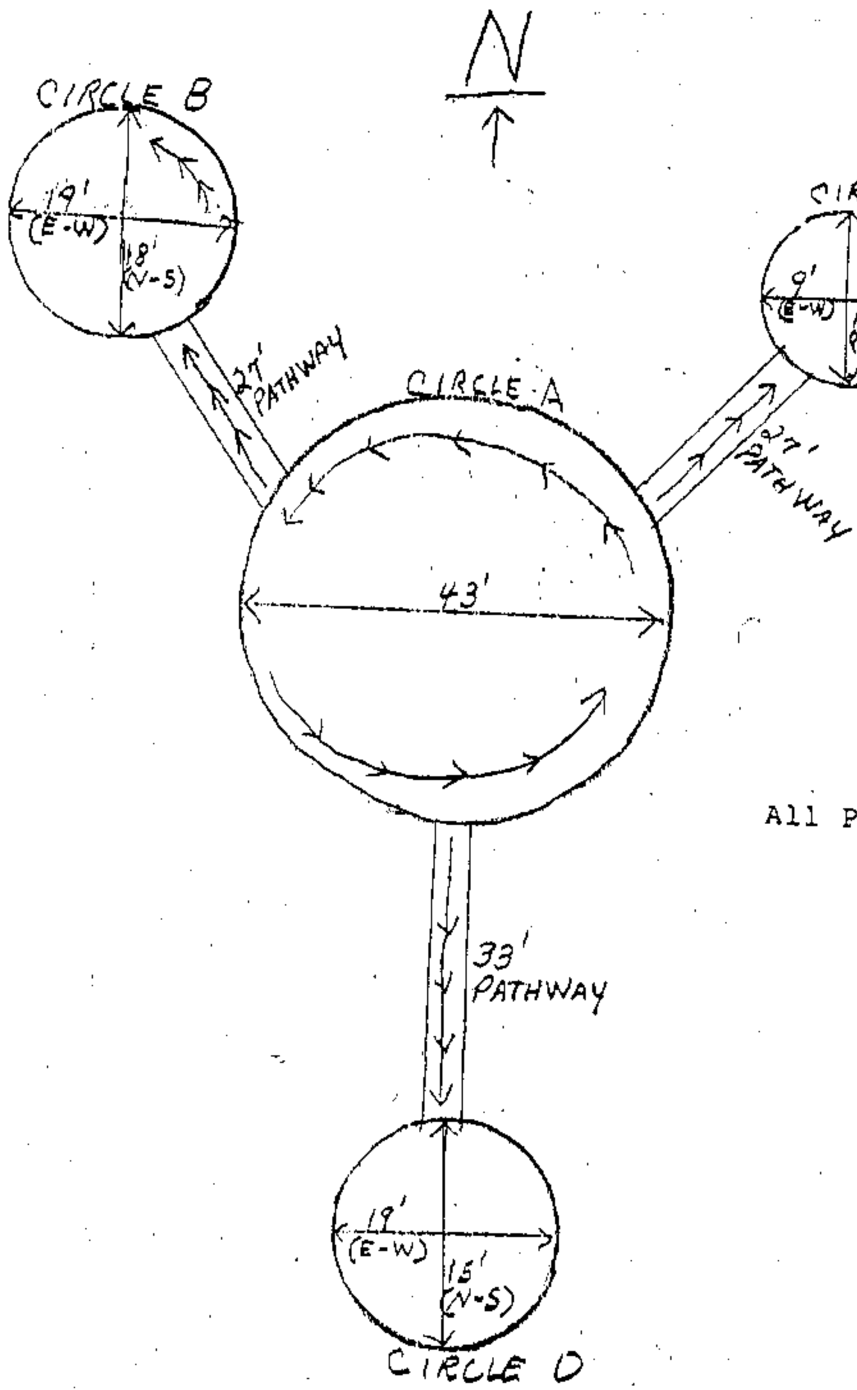
3) W.C. Levengood and J.L. Gedye, Method and Apparatus for Detecting, Recording and Analyzing Spontaneously Generated Transient Electric Charge Pulses in Living Organisms. U.S. Patent No. 6,347,238 B1, Feb. 12, 2002.

Dr. W.C. Levengood

FIG.1

FIELD DIAGRAM: DIMENSIONS & CROP LAY

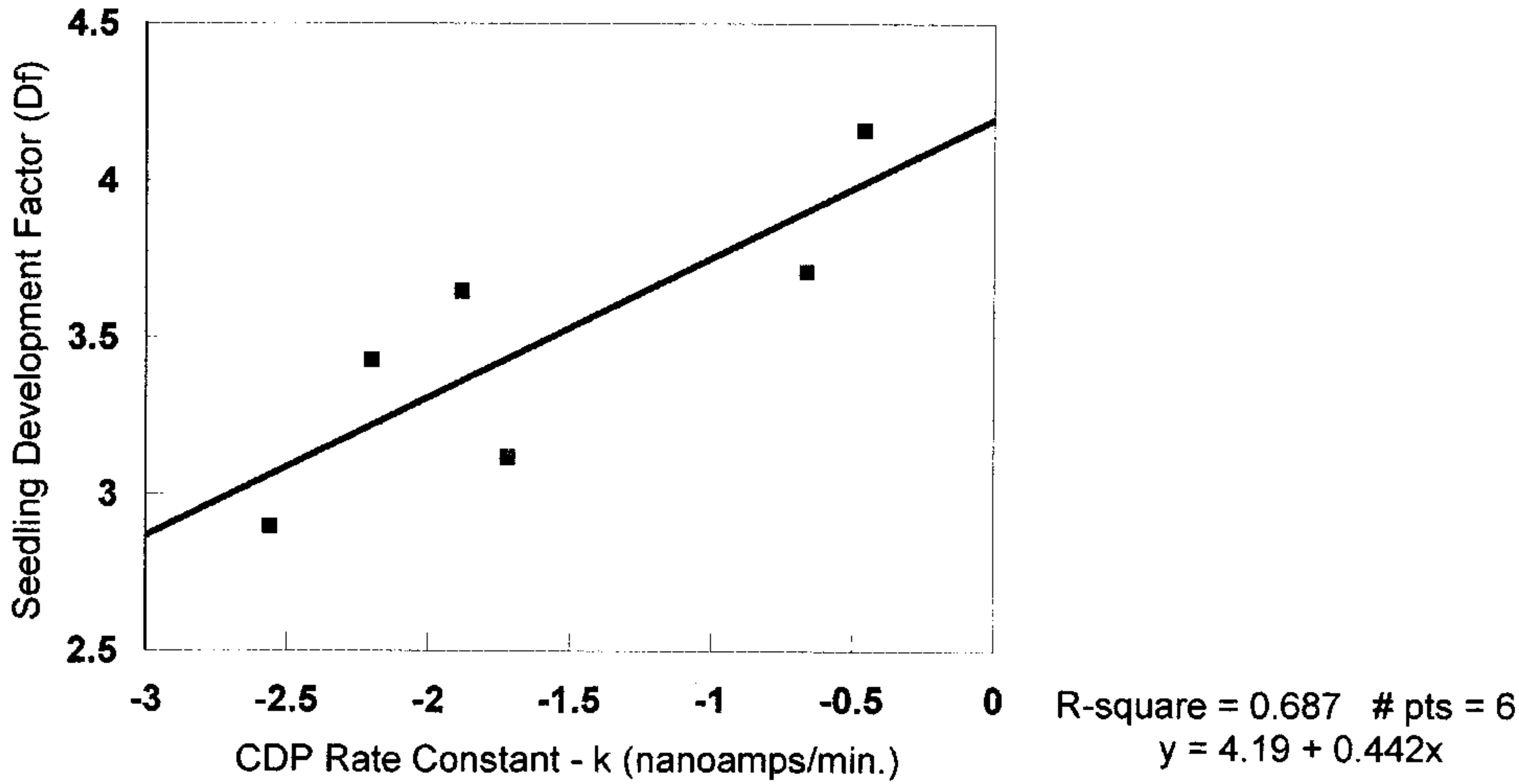
Formation Location: Montour, Iowa
Type of Crop: Soybeans
Date Formed: August 9, 2002
Date Discovered: August 10, 2002
Date Sampled: September 1 & 2, 2002



All Pathways - 2 1/2' Wide

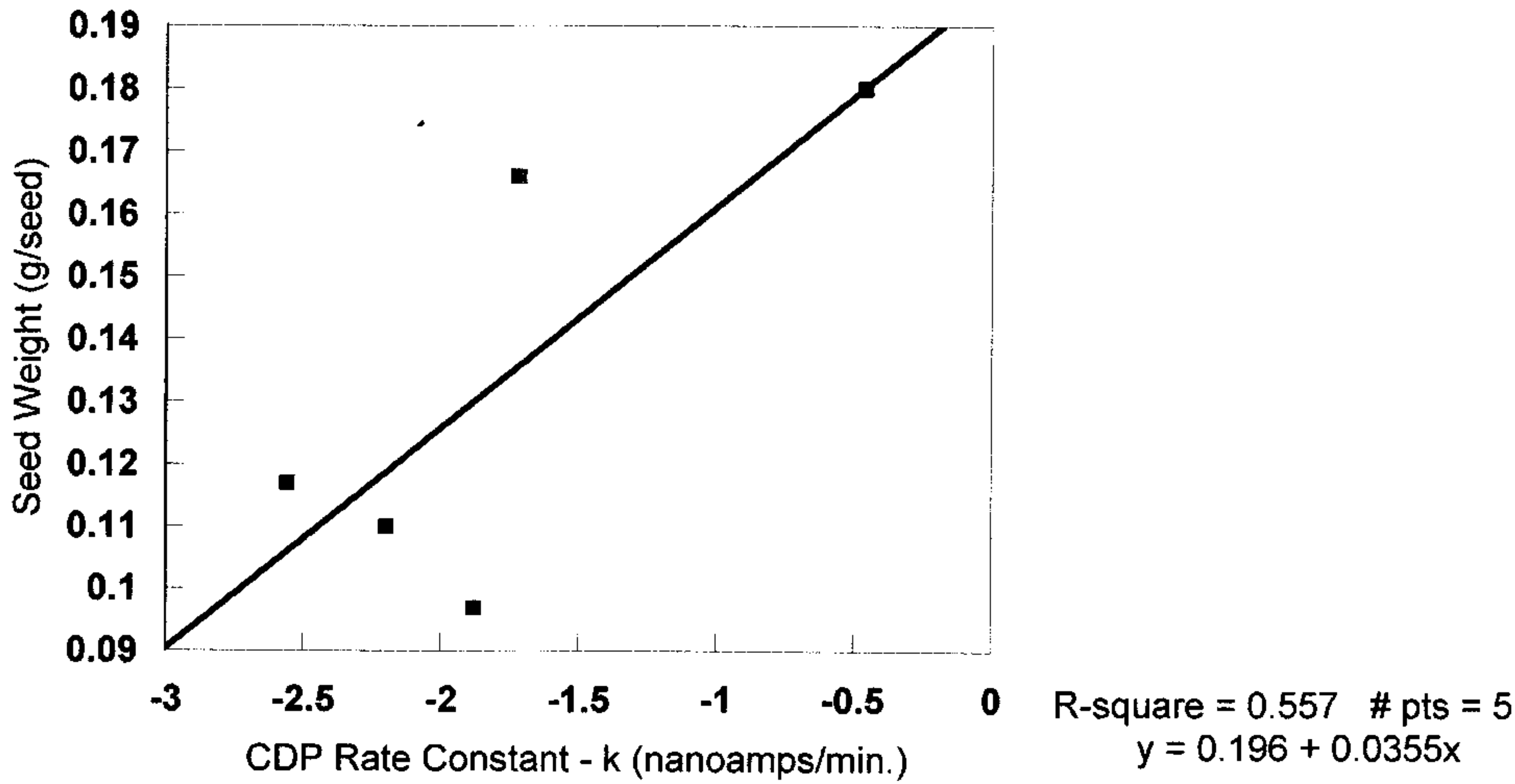
Free energy changes in crop formation soils as related to seedling development in a laboratory bioassay (Pinelandia Lab. 2003)

Fig.2 Crop Formation KS-05-137; Iowa, 2002



Relationship between free energy in crop formation soil and seed weights (data from circle -C); Pinelandia Lab. 2003

Fig.3 Crop Formation KS-05-137; Iowa, 2002



Comparison of seed weights at center of circles with mean seed weights from brown plants. (Pinelandia Lab., 2003)

Fig.4 Crop Formation (KS-05-137), Iowa, 2002