Greed and Seed. Corporate ficta by stealthy encroachment diminish our self-sustaining lifestyle by designing disguised sterile seeds. Farmers don't realize that they can hot-wire the seeds legally. F1 generation seed varieties are not protected by law; that's why Dekalb makes the seeds sterile.

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Essay #3916. Greed and Seed. Version #7.1

See also my essay #4076 - How to convert a seed to homozygosity.

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File: WordPerfect/.. . .Projects . . ./Actually completed. . ./Greed and Seed/3916 Greed and Seed. Version #3 written 4 Aug 2000. Version #4 written 4 August 2000 at 9 pm. **Version 5: 6 August. Added research findings from internet.** Version #6 Thursday, August 10, 2000. 9:32 PM. Updated after refreshing my memory regarding F1 generation and homozygous seeds. Revised to 7.1 Wednesday, November 1, 2000. 5:19 AM

To My Fellow Farm folks in Allen Township(actually I sent this to just a few people: Bernard Jenkins, and Mike the Manager of the Farmer's Elevator) : I welcome your help and your comments. Summary: With corn prices this low, farmers must now learn that, like Dorothy, you had the answer there all the time. The Wizard (Pioneer seeds) was lying when they told you that you cannot grown your own corn seeds - - and you never learned how. In times of low prices, farmers must reach for solutions. Assert your independence. Grow your own seeds - like your ancestors did! At least preserve your right to grow seeds. In accompanying essay #3990 I have proposed legislation to ensure that seeds will be fertile and the seed companies will be required to stop lying to us. Both this document and #3990 are evolving and are not perfect. If you received this via email or the web, then you are seeing the Web version using HTML (hypertext mark up language) which does not incorporate all of the columns and correct page numbering of WordPerfect.

Having spent my childhood in Allen township and having then lived away from Allen township and now having returned and left again, I can tell you from personal observation that you in Allen township have a way of life that is self-sustaining, healthy, and stable - and with the internet you are no longer intellectually isolated. Your life-style is the envy of many folks - and you will lose it if you won't wake up!

Today I am concerned with the high price of seed corn ($115 per bushel) compared to the low price that you receive for corn ($1.50 today?). Corporate farms do not sell like you do, but now Cargill and its fellow corporate ficta have you caught in a noose. They buy your corn and sell you overpriced seeds which you do not need. You don't even know that your forefathers used their own corn for seed - and so can you. In times of low prices, you should be growing your own seed. By your own intellectual laziness you have created your own demise. It is not too late.

The entire **intellectual property** area is greedy corporate ficta in action - descendants of the gypsies, jews[1], scribes, and pharisees - plying their trades of deception and predation. The seed

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[1]One of the lies of corporate ficta is that we should not say anything bad about jews - or anybody for that matter. In fact all of what is good in Allen township stems from two things: #1 good growing conditions; #2 the law that stems from the beginning of society and that was preserved by Snori Snuffelson of Norway (while the Catholic church was spending money trying to conquer foreign lands - and therefore bastardized the law of Jesus and turned it into "Lex" the law of oppression) and was passed down to us via the Magna Charta, the Mayflower compact, The Declaration of Independence, and the Constitution which all spell out ways to deal with other humans fairly. The Magna Charta warns us about jews (shrewd money dealers who preyed upon farmers and others) and established methods of dealing with them. I have jewish friends and they know my position. Remember that my point is **not** that I am not condemning any race; I am merely putting into **historical perspective** the **instruments of**

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companies want to do what the music industry has done - take the money away from those who produce - and put it in the hands of the people at the top. In pursuit of that effort Seed Companies in 1970 talked Congress into passing the plant protection act to prevent you from growing your own seeds - but Congress gave you an exception - and furthermore, seed corn companies are not protected because their seeds are not uniform nor stable genetically speaking - and arguably, those are required traits for protection, and the seed companies have now proven it because although they ask you to agree to their contract printed on the bag to permit them to put both feet in the trough, they really don't even trust you that far. For years they have been designing seed to be sterile - and that is just another example of the stealthy encroachment of corporate ficta who are older and more treacherous then we will ever live to be.

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oppression that now threaten Allen township - and one of them is the tendency of jews and their progeny to **extract money** from people by **deceit and by oppressive laws**. As example of a new oppressive law is the **1970 plant protection act** which is designed to ensure that the money investors behind the seed companies will profit from your crops every year because you won't be able to grow your own seed - which, by the way, you forgot how to do! Also, remember that the money investors behind Monsanto and Dupont did not pay for the Illinois high-oil selection program! Your Illinois tax dollars paid for this program and now some foreign multinational corporation is moving in to take $35 per acre from you for every acre that you plant in corn. You should be angry! Don't get mad; get even - by growing your own seeds - using genetic coding the present high oil seeds which were developed with your tax dollars! Congress specifically gave you an exemption to grow your own seeds using Pioneer's seeds - or anybody's - and the high oil corn is not protected by the plant variety protection act!

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Greed and Seed. Please take Heed.

Farmer's Issue #1. **In times of low corn prices we should be growing our own seed but lies of Pioneer and other corporate ficta thwart farmers in their effort to survive - and the Universities don't expose the lies!**

Farmer's Issue #2. **The Illinois High-Oil selection program was used to obtain high oil corn - - and Illinois farmer should reap the benefits. Instead, Dupont is stepping in to take the profit out of farming - and adding insult to injury by using our own tax dollars against us!**

Farmer's Issue #3. **We could just as readily have heirloom seeds that produce high oil corn. The Illinois High-Oil selection program provided the genetic coding for high oil. Why isn't the University of Illinois helping us Illinois farmers with this? And what about the cooperative extension service? Are they willfully promoting the lies - or are they simply ignorant?**

Farmer's Issue #4. **Monsanto and Dupont and their newly acquired fat corporate ficta Dekalb and Pioneer have available 3 methods to make sure that we don't use our crop for next year's seed. It is as bad as if Deere refused to sell tractors and only rented them to us. The 3 methods are: #1 selling us hybrid instead of heirloom seeds; #2 selling us male sterile and female sterile seeds; #3 the terminator gene which renders all seeds sterile - even ones in adjoining fields.**

The problem is greed and oppression. Humans have created corporations and now take a back seat to them. We must rise up and deal with the problem - but first we must know the problem. The problem is not technical but political, legal, and sociological.

Seed corporations have always used their fullest arsenal of dastardly tricks to tap the profit off of farming. There are 3 main tools in their seed arsenal as follows, in order of appearance:

#1 trick: Mendelian distribution in the post F1 generation. In the early 1900's (or earlier maybe) corporate ficta sold F1 generation seeds to farmers knowing that the whore universities would provide the warning to farmers that 25% of the progeny of an F1 generation will manifest a recessive trait according the basic laws of genetics discovered by Monk Gregor Mendel in his study of peas. Farmers never thought to demand laws to set standards that would reject this defective corn.

#2 trick: Now with high oil corn starting, as I recall in the winder of 1996/97 Monsanto sold corn that contained pink male sterile seeds and blue female crippled seed. The pink seed - the vast majority is indeed sterile - but Monsanto ran a decoy and deceived the farmers by a flurry of publicity saying that they were not using the terminator gene. Farmers and the kindly-but-stupid seed dealers didn't know and didn't care. As usual, they can see only as distant as the financing for next spring's crop;

#3 trick: The terminator gene. I don't know why the Department of Agriculture owns the patent. Either they helped the evil corporate ficta to develop it - or they paid a ransom to Monsanto to save the world from it. Either way, they could have done it legally with the stroke of a pen instead of paying ransom.

Even though Monsanto claims to have refrained from using the terminator gene, in fact Monsanto (by their previous name, Pioneer) has been selling sterile corn since 1996. I harvested sterile corn in 1997 and 1998.

Monsanto sells 2 kinds of seeds to farmers; the red seeds produce plants that have no pollen; the blue seeds

produce plant that have nubbins for ears. The red seed planted alone would theoretically produce a cob with no kernels. The blue would produce a cob with few kernels. Both seed lines have been intentionally sabotaged by Monsanto to prevent their use by farmers in the next generation.

Since as far as I can remember, farmers have meekly accepted hybrid corn perhaps not knowing that with legislation and legal action they could demand heirloom quality seeds. In the boom 70's they were happy to buy the best seed because they were getting a good price for each marginal increment in money spent on seed. When corn was $3.75 per bushel and seed cost $75 per bushel, the ratio of costs was 20. Now corn is $1.50 and seed costs $110. The ratio is 73, an increase of 370%.

And don't deceive yourself by thinking that the cost of producing seed is substantially higher than producing corn for feed. The same farmers use the same technology to produce seeds - except that there is the additional step of detassling some corn - and the drying must be done carefully - and admittedly there are other steps. I worked on a seed corn farm and have observed others in operation near my home. At best the cost of seed corn might fairly be twice to 3 times the cost of commercial corn - - not 73 times the cost of normal corn.

In times of low grain prices, the transition step is to reduce seed cost. After land acquisition cost, seed is the single highest cost of farming per acre at $35 per acre. Farmers have long held back part of their soybean crop in years of low prices in order to use it for seed in the spring. But for the treachery of seed corn producers pretending to be our friends, we would have stable homozygous corn suitable for use as seed.

Genesis of this Essay.

Diary notes: 25 June 2000 Sunday. 3 pm Morning thoughts. Again my mind turns to the problem of sterile seeds because nobody in my home town is farsighted enough to see the problem.

With Age and Experience comes the wisdom to recognize badness even when disguised and promoted.

Examples:

Example #1: **Seed corn producers focus their effort on producing sterile seeds so that we can only get our seeds from them. Greed precludes production of a natural viable seed - because we could use the crop for seeds the next year.**

Example #2: The new California law that permits a district attorney to simply send your name to all the licensing boards and take all your state licenses for alleged failure to pay child support - whether the allegation is true or not.

Example #3: In my home town Transco uses an overpriced computer program marketed in a predatory manner. It uses a "sentinel key" plugged into the back of the computer to prevent use of the program on another computer. This sentinel key is absent in healthy society. I view it as I would a vulture - a sign of decay - in this case a symptom of the brain drain.

Example #4: Music industry. Mp3 uproar. MP3 and Napster are a threat to corporate ficta who has been screwing us (both the buyers of music - and those who would like to have their music produced) for years with overpriced music - while at the same time screwing the musicians.

Example #5: The entire **intellectual property** area is greedy corporate ficta in action - descendants of the gypsies, jews, scribes, and pharisees - plying their trades of deception and predation. The seed companies want to do what the music industry has done - take the money away from those who produce - and put it in the hands of the people at the top. In pursuit of that effort Seed Companies in 1970 talked Congress into passing the plant protection act to prevent you from growing your own seeds - but Congress gave you an exception - and furthermore, seed corn companies are not protected because their seeds are not uniform nor stable genetically speaking - and arguably, those are required traits for protection, and the seed companies have now proven it because although they

ask you to agree to their contract printed on the bag to permit them to put both feet in the trough, they really don't even trust you that far. For years they have been designing seed to be sterile - and that is just another example of the stealthy encroachment of corporate ficta who are older and more treacherous then we will ever live to be.

But none of the readily apparent examples of oppression by corporate ficta hits as close to home as the sterile seed situation, and the shortsightedness and ignorance of farmers about sterile seeds. I'll explain:

In time of low corn prices we should be growing our own seed!

But even Walter Seed company of Grand Ridge (one of the last local seed producers) is now in the hands of Cargill - enemy of the farmers - but pretending to be our friend by buying Orion Samuelson and other corporate media whores - shills of corporate ficta. Corporate Ficta means "Corporate Fictions" (including governments and municipalities) and the significance is that since the age of the robber barons beginning during he civil war and continuing into the present the corporation has been an instrument of oppression to deny rights to humans and give more rights to perpetually enduring corporations which give the rich a dozen words with Congress for every word from non-rich - but I digress. We pay $38 per acre for seed. At a price of $2.50 per bushel, we could tolerate a yield loss of 14 bushels per acre - about 10% to 15% loss - and still make the same amount of money if we grew our own seeds - and we would eliminate sterile seeds.

Greed and Seed

In the past few years, some farmers have grown high oil corn which yields 7% oil instead of the normal 6%. Although the oil content is increased by 16%, the farmer receives at most 30 cents per bushel more - which is 16% of $1.80 - which should tell us what corporate ficta thinks corn prices should be. Monsanto purchased Dekalb. Dupont purchased Pioneer. As I was planting corn in 1998 I asked my brother Greg why a small percentage of the seeds in the high oil corn were blue instead of the normal pink. His answer was that the blue seeds produce the male plants - - the pollinators - which contain the high oil traits which in turn are spread to the female plants. That would be the normal efficient way of improving the quality of seeds - - - but my brother Greg is typical of the fat dumb farmer in Allen township who is pissing away the ranch and does not even know it. In fact the seed corn dealers don't even know what the deal is!! When I asked them about the seeds, the told me the corporate lie also!

In fact, the blue seeds have only one purpose: To ensure that the corn produced will be sterile - so we are dependent on corporate ficta!!

I thought about this while I was planting corn (something I would never have been permitted to do by my Dad and Greg - - due to their insecurity.) Jerry and I were on the 2nd crew in spring 1999. We used Dad's 6 row planter - - and planted just fine. I thought that Jerry would plant while I tilled - but Jerry told me then - in the spring of 1999 - to get on the tractor and plant - - or I may never get the chance again - and besides, Jerry likes to drive the bigger tillage tractor.

I will explain by stepping back in time until 1999 - when I figured this out. I must confess that I was mistaken about the embryo and he rest of the kernal. I thought mistakenly that high oil in the corn harvest of 1999 cannot be caused by the pollen that falls in 1999. I mistakenly thought that that the kernel is the part of the female part of the flower. I mistakenly thought that the oil content of the kernel is a characteristic of female zygote, the ovule. Now I have been informed that the kernel is a produce of fertilization and that indeed the desirable oil and other desirable nutrients (presumably lysine - although I am guessing on that) com from the embryo. I have known since childhood that the tip contains the heart of the seed - but I did not realize that this year's most desirable nutrients come from that tuny embryo which will be next year's

plant.

Emerson Hafziger from the University of Illinois explained to me that the kernel is not the ovule. The ovule is on the cob and will become the kernel but only after the double fertilization. One fertilization produces the embryo that lives in the pointy tip of the kernel. The other fertilization produces the endosperm with is the bulk of the kernel. Therefore indeed the content of the kernel harvested in October 1999 is determined by the pollen shed in summer 1999.

Another example: The shape of a flower in 1999 does not depend on the pollen that falls on it in 1999. (Retrospect: the kernel, the seed, is not the flower.) The 1999 pollen will only affect the shape or color of the next generation. (Retrospect: the kernel is indeed the next generation: proof: no pollen, no kernel.) It's kinda simple when you think about it - and it becomes even clearer if you consider flowering perennials. The perennial flower remains unaffected by stray pollen - although the stray pollen would affect the genetic material in the seeds. (Retrospect: and it would affect the shape and content of the seeds because the fertilization input genetic content from the pollen into construction of the endosperm which is the bulk of the seed - at least in corn.)

Same with peppers. You don't need to worry about growing all your peppers together - - unless you are planning to save the seeds. Then you must isolate the peppers by placing bug proof cages over the plants are flowering time to assure that the plants self-pollinate. Otherwise your purple peppers won't produce the correct seeds for purple peppers. Incidentally, we know from reading Horticulture magazine the direction that the purple peppers to move as they regress. Peppers regress to a hotter pepper, as I recall. Bell Peppers are a result of hybridization. Purple peppers are likely the result of even more hybridization - and likely you would get green peppers in the succeeding generation if you grew this year's purple peppers next to green peppers- - and likely you would get hot small peppers in the succeeding generation if you planted this years purple peppers next to hot peppers. But some would remain purple due to self pollenization - - but nobody wants purple pepper seeds that "sometimes" produce purple peppers.

Glossary - Remedial Genetics and Botany for Farmers about to go broke from their own failure to remember how their grandfather's fathers selected corn seed.

Angiosperm. Any member (including corn, oaks, roses, and daisies) of a class of vascular plants having ovules and seeds enclosed in an ovary, forming the embryo and endosperm by double fertilization and typically having each flower surrounded by a perianth composed of two sets of floral envelopes comprising the calyx and corolla.

Anther The part of a stamen that produces and contains pollen as is usually borne on a stalk. The tassel.

Bull rows. Rows of corn whose pollen falls on adjacent rows who plants have been castrated (detassled) by girls who grow up to be respected and feared.

Carpel (1835 word) - fused carpels is an ear of corn. A carpel is one of the **ovule**-bearing structures in an **angiosperm** that constitutes the innermost **whorl** of a flower. The innermost whorl of the corn is the ear, or course.

Corn silk. Seductive silky corn hair designed to hold onto the male reproductive **microspores** - - and in that way works much like human hair.

DNA Deoxyribonucleic acid - and I did not have too look it up either. The genetic instructions for the growth of living things. Monsanto has, through **destructive devolution** modified the DNA to ensure that their high oil seeds are sterile so that farmers in India and the USA - and soon China, will be a captive market for Monsanto's corn - and so that farmers can't grow their own seeds. I saw an excellent drawing of **how DNA works** in the book called ***Viruses*** by **Scientific American Press**

circa 1991. Assembly via DNA is kinda like a high school dance. Selective selection from a random assortment of parts. The chain of DNA splits apart into 2 and then randomly picks up the chemical that fits perfectly onto the vacancy - but due to the limited universe of choices (like a high school with only 8 kids - 4 sets of twins) the resulting matching spiral is identical to the original one - unless a mutation occurs (like a tornado sweeping away one of the 8 kids at the dance and sweeping in a new kid - like maybe Dorothy).

Dominant trait Example: brown eyes. See more at **Recessive trait**

Embryo A tiny corn plant contained in the pointy tip of every kernel of corn. The young **sporophyte** of a seed plant usually comprising a rudimentary plant with plumule, radicle, and cotyledons. The seed producers say that the increase in oil in high oil corn comes from a bigger embryo at harvest time which is when the embryo begins dormancy. On a certain day of the year every autumn you can first notice the "black layer" between the kernel and the cob indicating that the kernel is no longer receiving nutrients from the plant. A bigger embryo comes from longer growing season - and the **Illinois high-oil selection program** - not from any Monsanto or Dekalb magic - yet they want to swoop down and take $35 from every acre of corn that you grow forever - just because they can!

Endosperm - 1850. A nutritive tissue in seed plants formed within the embryo sac. The seed corporations say that high oil content comes from a larger **embryo**. Thus the **endosperm** would seem to be larger in high oil corn compared to normal corn - and the difference arises from a longer growth season and the **Illinois high-oil selection program** - which may have been selecting simply for **long season** corn, inadvertently or not - or **fast growing embryo**.

Female plant When we produce high oil corn, the **pink kernels produce the female plant**. Technically it is different than a true natural female plant such as the female plant that produces those potent buds in marijuana which is something you kids will learn about when you grow older - but your Dad plants it in the bean field - way out in the middle - but hey, you didn't hear it from me. Incidentally, marijuana can be used to make paper and clothes 3 times more efficient than the way we do it now - and it would save the cutting of our great natural old growth forests - but it would take business from corporate ficta and put it back into the hands of farmers and make us more self sufficient - and expand our list of marketable products beyond the 2 products that we have now.

F1 generation. (No relation to generation x) The generation of corn that we plant in the field. Its progeny[2] are subject to Mendel's rules and will not be uniform in phenotype. **Significance:** The F1 generations at the heart of **Mendel's paradox** which is this: If the parents have identical genetic coding for a trait, how can that trait possibly be different from the parent? The **F1 generation** produces children according to Mendelian application, that is to say, 3 brown eyed kids for every blue eyed one if you start with each parent having a heterozygous(one brown, one blue is heterozygous) genes for brown eyes. **Application:** The **corporate lie** is that Mendelian distribution is the boogeyman to blame for not being able to be free from the curse of Mendelian distribution, but the seed companies could easily sell us heirloom quality seed - that is, **homozygous** seeds. I asked my brother why we have blue kernels. I asked the seed companies by email. They did not respond. I asked seed dealers. None of them knew but they all told me the corporate lie; that it was necessary for high oil corn. This is a lie. In truth, it is part of the continuing effort for 50 years to corner the market on seeds and keep farmers captive as their buyers. For more information, use your web browser or your dictionary or encyclopedia for the words "F1 generation, genetics, Mendel, homozygous ". F1 generation is not in most dictionaries. I found the following website on the first try. I searched for "F1 generation genetics." I went to this website first and it was perfect:

[2]Progeny means descendants or children.

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http://www.ece.utexas.edu/~weston/Preeti10.html

Gametophyte. an 1889 word. It's the male thing that travels to ovary in the cob of corn. The individual that bears sex organs - as distinguished from sporophyte. Some plants reproduce sexually. Corn does. Sexual reproduction permits introduction of new (and hopefully improved) traits more quickly. Mushrooms, by comparison produce asexually, I am guessing.

Genotype. Look it up. Genotype is genetic coding - as distinguished from phenotype which is the eye color of other manifestation of the dominant over the recessive genes in the genotype. See Phenotype. The genotype is not visible. The phenotype of many traits is visible. The genotype could, in earlier days, only be determined by backward logical extrapolation or by knowing the genealogy of the parents.

Heterosis. Hybrid vigor. See Hybrid vigor.

Heterosporous. Seed plants are heterosporous.

Heterospory - 1898. The production of moth microspores (in pollen?) and megaspores (as in seed plants and some ferns).

Hybrid A plant whose genetic material comes from 2 sources. In other words, the opposite of an heirloom. The significance is that the hybrid exhibits "hybrid vigor" which means that generally the stronger traits are dominant - but also, due to Mendel's rules, the F1 generation may have 25% different than the remaining 75%.

Hybrid vigor - technical name: heterosis. A natural phenomenon whereby the product of hybridization is usually better than either of the parents. **Palaschak's theory of heterosis**: I have thought about this **paradox** - and after 30 years I have this answer. Hybrid vigor only happens when starting with a normal untampered universe. Genetic traits doesn't keep getting better progressively simply by crossing with anybody. Hey, just look around you. The explanation is similar to understanding why all the waves coming to shore are going in the same direction. Well, duh, the ones moving in another direction went to another shore. Similarly, in two families of pigs, people, or corn, both families evolved by natural selection although some families of corn in a different climate, for example, may not have severely tested certain traits - and therefore have not improved. Stressing causes improvement. In the words of Conan the Barbarian: "whatever does not kill you makes you stronger" - but natural selection only works when it kills; it kills the weak before they reproduce. When you combine the two random banks of genetic material, you obtain the statistical benefit of years of natural selection pertaining to those traits that your own family did not test for, such as ability to withstand a cold winter (which may be a proxy for intelligence - and the underlying explanation for the race problem: People in warm climates have never needed the intelligence to survive a cold winter - and therefore the genes for stupidity are with them today. My proof: How many inventions came from Africa or the middle east, or tropical America, or Mexico.)

Hybridization The process of introducing new traits into a plant (or animal) by using pollen from a new different variety, or source. Hybridization is easier with corn because the pollen producer on the corn stalk is 2 feet or more distant from the egg - and therefore self-pollenization can easily be thwarted.

Homozygous. A 1902 word. Adj. Having the two genes at corresponding places identical for that particular trains such as male sterility, high oil content, female sterility, etc. Example: In high oil corn the blue seeds likely are homozygous regarding female sterility and male fertility. Conversely, the pink seeds are homozygous regarding the male sterile trait and the female fertile trait. Incidentally, it is like baby colors, pink is female and blue is male. The F1 generation that we harvest will likely distribute

these traits in Mendelian distribution. MM Mn nM mm[3]. A seed company could attack many parts of the plants to produce sterility - and therefore they could likely cause sterility to be dominant or recessive - whichever they choose. They would choose dominant to ensure that the F1 generation is incapable of producing seeds. Let's look at that carefully. The F1 is what you harvest. Of course it will grow - - but I predict that there will be many missing ears and defective pollen and in the fall when the ears arrive, you will find no kernels. **I did this research inadvertently when I was a child. I planted some corn from the crib. I planted it near my old sand box under the apple tree between the cob house and the out house. Wow, I feel old now. In the fall, when I would be harvesting, I discovered that the corn had what I called "pop" corn ears - because some kernels popped up - but most failed to appear. That picture stayed with me all these years. My Dad said that perhaps the pollen was ineffective because I had only 3 or 4 stalks of corn in this patch - and maybe he was right. Let's look a little deeper.** Anybody who drives around LaSalle or Grundy county will find seed corn being grown. In 1996 (and maybe 97 98 99 and 00) seed corn was grown on Gardner road not far from the Lowery dairy farm on the north side of the road. You can see the bull rows and the female rows - which are detassled by kids every year. If the seed companies wanted to prevent their corn from being used as seed, then they could use female sterile corn in the bull rows - and maybe they do - that is their practice with the high oil seeds that they sell to you; the blue seeds are the female sterile bull row. If they could make that gene dominant, then the F1 generation would be female sterile and produce ears with no kernels - - like the corn that grew for me when I was a child. I should have alerted my neighbors to this oncoming catastrophe then, but I was a child then and I did the things of a child; Now I am an adult and I have a duty to speak up - which is what I am doing now. **Significance:** Now that I have observed complex problems in society I differentiate between those that cannot be solved with the stroke of a pen - such as disease, bodily injury, drought, etc; and those that **can** be solved with the stroke of a pen - such as the problem that I observed as a child: **intentional design of sterile seeds for purposes of greed!!** Our government wants to help the farmers but they are whores to Agribusiness. Farm Bureau is not your friend either! And neither are your educational institutions to be believed blindly! They are all beholding to corporate ficta. Otherwise you would already know the truth: Corporate ficta are selling you sterile seed so that you cannot grow your own seeds!

Application: In production of **high oil corn**, we actually do the last step of cross breeding in the field - which permits us to have an F1 generation that has both high oil that we desire, and the sterility that Monsanto desires to prevent us from **independence and control of our finances!** This last step is hooey; the seed corn companies could have given us homozygous fertile seeds - heirloom quality seeds - or at least warned us.

Male plant. The blue kernels produce the male plant in high oil corn - that's why they are blue. Blue is the color for male babies. Duh.

Megasporangium. A sporagnium that develops only megaspores.

Megaspore. A spore in **heterosporous** plants that gives rise to female gametophytes and is generally larger than a microspore.

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[3]This Mm terminology is the jargon of genetics. The capital letter stands for the dominant trait which is male sterility in this example. The small m stands for recessive. When a plant or person gets a dominant gene from one parent and a recessive from another, then the dominant dominates the child will have brown eyes and the corn will be male sterile and the children of the child will have no farm because his parents lost it because they were farmers who could not even grown seeds, fer crisesake - and that, incidentally, is called survival of the fittest. In an area where the best and brightest are driven away, then the infection of corporate ficta sets in and sucks out the life of the community, but I digress.

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Mendel's rules. Look it up. Essentially is says that two brown eyed people can have a blue eyed baby - and it is because a brown eyed person may carry a recessive gene for blue eyes which will manifest itself in a blue eyed baby if this baby inherits a blue gene from the Mom. Gregor Mendel was a monk who experimented with peas to observe the appearance of wrinkles skin and other traits and invented genetics. It just shows what you can do if you get some time to concentrate. Hint: He had no children and no job and no social life. Mendel, that is. I'm not talking about me.

Microspore What travels to the end of the silk. Then what happens? How does the information get to the ovary. Does something travel down the silk? Or does the stork bring it?

Nucellus - 1882 - Latin: small nut. Kernel. The central and chief part of a plant ovule that encloses the female gametophyte.

Ovary. In corn the ovary is located in what will be the cob. There is an ovary for every kernel. I think so. The silk is the means by which the male microspore from the pollen travels down to where will be the kernel and into the ovary. See the dictionary under "flower" for a picture of the location of the ovary in more normal plants than corn.

Ovule. An outgrowth of the ovary in a **seed plant** that is a **megasporangium** and encloses an **embryo sac** within a **nucellus** (which is a fancy name for a kernel).

Phenotype. The physical manifestation of the genotype. The product of the DNA when it grows into an actual plant or person. The phenotypes may look the same but have different genotypes. The one brown eyed person may have 2 brown eye genes while the other may have a brown gene and a blue gene. They have the same phenotype (as manifest in their appearance - their brown eye color) (limited to that one trait) resulting from different genotypes.

Pistil A single carpel or group of **fused carpels (the ear of corn)** usually differentiated into an ovary, style, and stigma.

Pollen grain. An 1835 word. The first settlers came to Allen township in 1850. They were corn farmers - probably with this word on the tips of their tongues. It was probably the cool thing to say back then . . .before the word "homozygous" had been invented. One of the granular microspores that occur in pollen and give rise to the male gametophyte of a seed plant. Pollen is produced in corn at the tassels at the top of the stalk. Corn pollen is transported to the silk by gravity and wind. By comparison, most common plants self pollinate without need for wind because the pollen is within millimeters of the pollen receiver. The pollen is absent in some corporate ficta produced corn due to their greed. **They sell us crippled corn so that we cannot grow our own seed. They compound this with the lie that the blue pollinator seeds give us the high oil trait. Ha! They give us sterility!**

Recessive trait Example: blue eyes, male sterility, or male insterility in corn. Seems that you could design it either to be recessive or dominant - and our enemies, Monsanto and Dupont, have chosen to make it dominant - but that is must my conjecture. Go ahead, make my day. Prove me wrong.

Sporophyte The individual or generation of a plant exhibiting alternation of generations that bears asexual spores. Compare and contrast to **gametophyte**.

Stamen Look it up your self, fer crisesake! It's in the dictionary. Okay, it is the pollen producing male organ of a flower. It consists of an anther and a filament, the filament being the stalk that bears the anther. Hmm, sound like the filament is the 2 feet of stalk holding the tassel above the ear.

Stigma The female organ at the end of the style (corn silk) to which the pollen attaches. The stigma is more obvious on flowers more normal than corn.

Style. A filiform (shaped like a filament - like silk in the case of corn) prolongation of a plant ovary bearing

Greed and Seed. Corporate ficta by stealthy encroachment diminish our self-sustaining lifestyle by designing disguised sterile seeds. Farmers don't realize that they can hot-wire the seeds legally. F1 generation seed varieties are not protected by law; that's why Dekalb makes the seeds sterile.

stigma at its apex. In corn, that would be the silk coming from the ovary in the cob (which is a group of fused carpels) and reaching out through the husks to catch the pollen - so the silk must be the stigma and the style together with a minimized stigma.

Tassel Okay, technically the scientific generalized botanical name is "anther". A tassel is the anther on corn. See anther, above.

A-maize-ing Corn Facts

Mike Rankin
Crops and Soils Agent - Fond du Lac County
University of Wisconsin - Extension

- From 500 to 1000 spikelets form on each tassel (the male flower) with each spikelet containing two florets. Each floret contains three anthers from which pollen is released.
- Two to five million pollen grains are released per plant.
- It takes about a week for an individual plant to shed all of its pollen with the greatest volume of pollen being released on the second or third day.
- If anthers become wet, pollen shed is temporarily shutdown.
- The majority of pollen shed occurs in the morning when temperatures are moderate.
- Each corn plant has the potential to form from six to ten ears, although only one or two actually develop.
- Each ear shoot (the female flower) has the potential to develop about 1000 kernels (called ovules in the developmental stage) of corn. However, only 400 to 600 actually form on typical Wisconsin hybrids.
- A silk elongates from each ovule (potential kernel) site.
- A pollen grain must land on an individual silk if fertilization of the ovule is to occur.
- A pollen grain can land anywhere on the length of the silk. Once this happens, a pollen tube begins to grow inside the silk and fertilization of the ovule takes place within 24 hours.
- Silks are only receptive to pollen for about ten days after emergence from the husk.

Some basic corn facts - Detassling and the reason we do it

Kids in Illinois detassle corn every year. Corn is ideal for hybridization because the pollen producer, the tassel, is some 2 or more feet above the female part, the ear, which contains the ovaries. Therefore you can put a bag over the ear to keep out stray pollen and then pollinate the ear with pollen from a new variety - which you would grow in the bull row - or else you could transport pollen by hand from a more distant plant. The young ear of corn produces silk while the tassel, on the top simultaneously drops pollen. Each pollen contains male microspores. This male genetic information travels down the silk to meet the female genetic coded materia located in the fused carpels known as the ear. The result is double fertilization (one

fertilization producing the embryo and the other producing the endosperm) which is unique to seed plants. Each silk goes to one kernel, I think. The embryo resides in the pointy end of a kernel of corn. Oh, now I remember: we did experiments with corn embryos in "Weed and Seeds" class at the University of Illinois. The embryo stays viable for years even through a freezing cold dry winter.

Every kids who detassels corn knows that there are bull rows that they do not detassle. The pollen, containing male microspores, from the bull rows falls onto the silk on the ears of the detassled corn. In that manner we hybridize the corn by introducing new traits by using pollen from a different variety of corn.

By comparison, soybeans (and almost all other plants with which we are familiar) have the normal flower that you can find drawn in the dictionary with the stamen (which produces pollen - which contains male microspores) located close to the stigma which receives the pollen and is connected (via its stem called the pistil or silk in the case of corn) to the ovary which produces the female genetic coding. The stigma sits on a stem called the pistil.

Corn has an unusually long pistil and/or stigma called the silk. Whereas most flowers have maybe 5 or 6 pistils, corn has many, one for each kernel. I am guessing that corn has an ovary for each kernel. Corn always has an even number of rows of kernels, typically 14, 16, or 18. Each row has about 25 to 35 kernels. Therefore each ear of corn has approximately 360 kernels - and a stalk may have 2 ears in a good year. By comparison each bean stalk has approximately 20 to 30 pods containing 1 to 3 beans - or approximately 40 beans.

The flower parts are so basic that they are in the dictionary. Just look up flower, stigma, pistil, ovary, and stamen.

Okay, so if they don't give us high oil, then what do da blue seeds do?

(Retrospect, the blue kernels do indeed give us high oil; I was wrong about that. However, we could easily develop homozygous high oil corn.)

What interest does the greedy Corporate Seed Company have in the genetic makeup of a the tiny germ at the tip of a kernel that will be ground or otherwise used for feed or food?

Keep in mind that the oil content of this corn has been determined by the DNA in the pointy tip of the kernel that you bought from the seed company at $120 per bushel. Keep in mind that corn prices today on 4 August 2000 are $1.50 per bushel. You spend $40 to buy that 1/ 3 bushel of seeds to plant that acre of corn. It is the single highest expense per acre. You will receive 50 cents for 1/ 3 bushel of your corn - yet you pay $40 for a bushel of the child of that corn - - which, under ordinary laws of biology should have the same genetic make-up - - but corporate ficta tampers with the laws of biology - not so much to give you high oil as to ensure that your crop is sterile! The profit per acre on corn can range from zero to maybe $80. Duh, why not save $39.50 and thereby double your average profit by growing your own seeds - like you do with soybeans - like self-sustaining farmers have done for years! The yield will be lower, you say? Well even if your yield is down 26 bushels per acre (which would be a 20% loss on 120 bushels per acre) you still are money ahead. **Back to the question: What interest can the seed company have in the genetic makeup of the germ in the tip of that kernel that you harvest and could sell at $1.50? Answer: Their only interest is to make sure that you don't use it to grow next year's crop and stop buying their $120 seed corn!!! You would be better off buying crack cocaine!! These seed companies are treacherous.**

Let's take a look at the botanical genetics involved.

To understand the blue seeds, let's consider the pink seeds first. Why don't we need to detassle the "female" corn that sprouts from the red seeds in the high oil seed bag? Answer: Because the pink seeds produce sterile tassels and pollen, fer crisesake!! Otherwise the blue seeds would not be able to compete because they would be outnumbered in the pollen department.

Query - could we substitute our own pollinator seeds and eliminate sterility?

Hmm. If we could take out all of the blue pollinator seed and substitute more generic seed - like a non-high oil corn then the next generation would likely have high oil seeds **and** tassels that work! I think

that we can prove that they would **not** be high oil with tassels that don't work. I think that the sterile tassels is a recessive gene - and that is why they give us the pollinators! The pollinator seeds (and the pink female kernels too) each have 2 recessive genes - and that is why Pioneer adds the pollinator seeds - because obviously the pink cannot pollinate themselves because they are double recessive. So they need to be pollinated. If we used our own pollinator seeds from non-sterile corn of any variety, then we would be adding the genetic capability to be non-sterile.

I conclude that if we took out all the blue sterile pollinators and inserted an equal number of normal corn seeds (in other words "heirloom" (non-hybrid) - or even stabilized (not F-1 generation) hybrid non-sterile seeds) then we could convert the entire crop to non-sterile, fertile seeds - and use that seed for the next years crop - and case law says that we could use those seeds legally - and theoretically we could even sell the next generation because we bred them ourselves!!!!! (As distinguished from next generation self-pollinated hybrid soybeans which were bred by the vendor because we did not change the genetic make up. The soybean self-pollinated. By comparison, we have chosen the pollinator plants in my corn example for producing our own high oil corn.)

If I were farming I would be testing this theory; If the universities worked for us, they would save us the trouble. If the magazines wrote for us, we would already know. If Orion Samuelson were on our side (instead of being paid by our enemies, Pioneer and Dekalb) he would have told us.

But I don't find any local farmers doing any work on testing corn seeds or growing their own like they do with soybeans.

Hey you, Mr. Farmer, those blue pollinator kernels are not really magic beans! Just the opposite: they make your corn sterile! Just a thought here: Hmm, if a seed cannot by itself produce a crop, then is it even rightfully called a seed? Pioneer, Dekalb and Wyffels lie to you.

If you crashed a plane on a desert island and you were wearing your blue jeans that you wore while shoveling the beans out of the bin, and if you had one bean that went through the wash, you could grown a bean plant! And if you had in your other pocket a pink high oil seed - - You could **not** grow corn. Duh. That's the difference. Mike, the seeds are sterile!! By definition, a seed does not need another seed to reproduce, fer crisesake! Cows need 2 cows to reproduce. (Whoa, we have turned it all around. Now the cow producers eliminated the bull via artificial insemination - and the seed producers at the same time have introduced the need for a "bull" seed. Life is weird sometimes.)

The pollen does indeed influence the traits of the kernel - but heterozygous reproduction is not essential for high oil content! You already paid for the research when you bought the Illinois high-oil selection program; Now Monsanto and Dupont are stealing the results from you.

Lawyer talk: You do indeed need pollen that is genetically coded for high oil to breed with the ears that are genetically coded for high oil - but you would already have that with a normal **self-pollinating** long season corn - which was developed with your tax dollars. Dekalb, Pioneer, and Wyffels refuse to sell you what you already paid for! You paid for the research. Now, instead of selling you some nice seeds that you could use to produce our own seed, they are giving you a **21st century magic bean story**.

I learned that the pollen does indeed have the capability to influence the traits of the embryo and endosperm within the kernel - but that does not justify or explain the use of sterile plants. Both the male and the female sterile corn seeds that Pioneer sells us are coded for high oil - thanks to Illinois taxes paid by farmers to permit Pioneer to benefit from the Illinois high-oil selection program and attempt to restrain trade and inhibit seed independence. The pollen (the male gamete) and the female gamete (located in the fused carpel that we call an ear of corn) split DNA and reform following Mendel's genetic rules and produce the embryo and endosperm inside the nucellus (kernel). But this all happens with homozygous or heirloom quality self-pollinated seeds! We don't need two kinds of sterile seeds to do that. The sterility is an instrument of oppression - and you should be outraged that Pioneer and Dekalb and Wyffels are using your tax dollars against you. And where are your legislators. They don't even know that the kernels are sterile!

Remedial Genetics - Gregor Mendel - a Monk and his peas. The Dekalb Big Lie:

Greed and Seed. Corporate ficta by stealthy encroachment diminish our self-sustaining lifestyle by designing disguised sterile seeds. Farmers don't realize that they can hot-wire the seeds legally. F1 generation seed varieties are not protected by law; that's why Dekalb makes the seeds sterile.

The Pollen gives you high oil. Ha!

Remember that a recessive trait - such as blue eyes - will not appear unless the recessive gene from each parent is given to the child. Otherwise the dominant (brown eyes) gene will determine the eye color. This scandalous example may help you remember: If two blue-eyed blonde parents produce a brown eyed child, then somebody cheated, because both of the parents, being both blue-eyed, had 2 blue-eye genes - and therefore the child could not have received a brown eye gene from either parent - and if the eyes of the child are brown, then the child must have received a brown gene from somebody.

However, in many traits, the choices are not brown or blue - but shades of grey. This is the case with high oil. Therefore, if you were to cross pollinate with non-high-oil, the result would be something less than high oil. But we would never reach that issue except that we must search for a reason for the pollinator seeds; the conclusion is inescapable: they are there to keep you addicted! You could be growing your own seeds from their stock! (You would need to investigate to see if the sterility can be easily undone - and it likely can be undone.)

Query: Is this policy of sterile seeds the product of Monsanto and Dupont?

Mike at the Farmer's Elevator told me that Monsanto did a survey to test the popularity of sterile seeds - and the result is that farmer's don't like the idea- - so Monsanto disguised the sterility!

Whether it came from Dekalb or from the new owners, it is the product of corporate ficta and their mentality which is divergent from the mentality that contributed to the stable, self-sustaining life style that I enjoyed as a child in Allen township. The seed companies want us to be dependent on them for seed. Ordinarily in times of low prices we would hold back a portion of the crop and use if for seed, as we do now with soybeans when bean prices are low.

A study of history tells us that corporate ficta has already entrapped India by making them dependent on corporate ficta for seed.

The WTO wants us to trade with China so that they can expand their shortsighted greedy policies on China and make their agriculture capital intensive and their seeds sterile. Corporate ficta does not car that we would be buying products from china made by slave labor and the labor of young slave children. In fact corporate ficta wishes that we could return to slavery here in the U.S. - and in fact the neo-slavery in America is the 2nd class status of humans in comparison to corporations. Farmers and I know that in every industry we have become more efficient. Well then why do we continue to work 40 hours per week when we ought to be working only 4 to 10 hours per week based on the increased efficiency? Answer: Corporate ficta has skimmed off the profit. Why have we seen so few technological advances since 1942 (when corporate ficta swooped down and scooped up Tesla's writings (Tesla planned to distribute free electricity to everybody) after Tesla died in 1942)? Answer: The government hides progress using the excuse that we must keep secrets from the enemy. The Russian people were not our enemy. They are a lot like us. I am ¼ Russian. In fact history shows that governments and corporate ficta including the catholic church have always organized war and used people as pawns in the battle between the competing corporate ficta.

Research Results from the Internet. Basic Facts about High Oil Corn. From Ohio State University Website

Research done Sunday, August 6, 2000. 6:35 AM

HIGH-OIL corn contains approximately 7 to 8 percent oil. This is a 2 to 3 percent increase over normal corn. Additionally, protein quality and quantity are increased somewhat in high-oil corn. This is because **the germ size is larger and it contains protein of higher quality than the endosperm**. The **high-oil trait is controlled by many genes and is derived from the Illinois High-Oil selection**

Greed and Seed. Corporate ficta by stealthy encroachment diminish our self-sustaining lifestyle by designing disguised sterile seeds. Farmers don't realize that they can hot-wire the seeds legally. F1 generation seed varieties are not protected by law; that's why Dekalb makes the seeds sterile.

program[4]**.** Source: Web site of **Ohio State University Extension**

Department of Horticulture and Crop Science
2021 Coffey Road, Columbus, Ohio 43210-1044

If cross pollination occurs, the cross-pollinated ears of the waxy, high-amylose and high-lysine hybrids will produce normal seed and the seed of the high-oil hybrid will have an oil percentage intermediate between the normal and high-oil hybrid. Corn grown under contract is usually checked for possible contamination with field corn. To avoid cross pollination, specialty hybrids should be grown in an isolated field or the grain from the border six to ten rows should be harvested separately from the rest of the field. Additionally, these specialty hybrids should be grown following crops other than corn to avoid volunteer corn.

Limited data do indicate that high-oil type hybrids containing 7 to 8 percent oil may be produced with little or no sacrifice in yield.

Feeding trials with high-oil corn indicate improved feed efficiency and rate of gain. This is expected since oil contains more energy per pound than starch.

Prepared by:
Peter Thomison
Extension Agronomist

From University of Illinois Website

About **5,000 acres** of high oleic high oil corn are currently being grown under contract with Optimum Grains for the first time in Illinois. All of the high oleic corn acres are grown with Dupont's TOPCROSS technology, which involves planting seed of a high oil pollinator mixed with seed of a male-sterile hybrid. High oil corn blends grown with the TOPCROSS system often produce yields comparable to the grain parent, depending upon the growing conditions. Due to higher grain energy content, though, yields of HOTC have sometimes been lower than those of normal corn, especially when yields are limited by the total amount of energy available from photosynthesis. Because this is a first-year program, high oleic high oil corn yields remain to be seen.

Developed by the College of Agricultural, Consumer, and Environmental Sciences
at the University of Illinois at Urbana-Champaign
Funded by the Illinois Council on Food and Agricultural Research

From Wyffels Website

Wyffels Hybrids is a regional agricultural seed company providing elite corn hybrids, high oil corn seed blends, and premium alfalfas to farmers of the U.S. midwest.
740 East Henry Street • PO Box 246 • Atkinson, IL 61235-0246
309-936-7833 or 800-369-7833 • (fax) 309-936-7930
Administration - wadmin@wyffels.com
Production - wproduction@wyffels.com
Research - wresearch@wyffels.com
Sales and Marketing - wsales@wyffels.com

Inquiry to Wyffels by email

I sent this email to Wyffels on 5 August Sunday morning: How can you know what the price differential will be for high oil corn? Isn't this differential unilaterally determined by Cargill?

Optimum®, TopCross® and TC Blend®
are registered trademarks of Optimum Quality Grains, L.L.C.

[4]Well, if it is selected, the why didn't the University select it and make it widely available in non sterile corn for the taxpayers!

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From Dupont Website. They own 100% of Pioneer since 1 Oct 1999.

From their website: Oct 1 1999. Dupont completes its purchase of all of Pioneer stock and deceptively calls is a merger. Cost: $7.7 billion for 80%. That means 100% is worth about $10 billion.

From Dupont (Pioneer) website:

The generally suggested plant density for TC Blend seed corn is 2-3,000 plants/acre higher than the conventional planting rate (Optimum Quality Grains, 1997 and Kaplan, 1997). This increase in density will help compensate for the **limited yield contribution of pollinator plants**[5] (Carter and Mahanna, 1996). But once the plant density exceeds 30,000 plants/acre, an increase in density is not suggested. In addition, some specific products have higher or lower plant population optimums.

. . .

The percent oil and nutrient characteristics of high oil corn versus conventional corn are significantly different. High oil corn generally has higher oil content and essential amino acids (building blocks of protein). The elevated amino acids are lysine, tryptophan, and methionine. The change in nutrient composition is due to a **physical change in the embryo (germ). High oil corn has a larger embryo** which contains more oil and higher quality protein. However, these changes decrease the starch content of the kernel by approximately 1.3% for every 1.0% increase in oil content. The table below indicates relative nutrient proportions of Optimum high oil grain and conventional corn (Table 1).

References

Carter, P.R. and W. H. Mahanna, 1996. ***High Oil Corn. Crop Insights*** , Vol. 6 No. 16.

Kaplan, S. 1997. Unpublished. Optimum Quality Grains. 1997. Optimum High Oil Corn Resource Manual. Pages 3-4.

Pioneer Hi-Bred, 1997. Pioneer High Oil Corn, Introductory Information . Nutritional Insights.

Strachan, S. 1997. Unpublished. Thomison, P.R. 1997. TopCross High Oil Corn Production: Management Considerations. Extension Fact Sheet, af-135-97.

Inquiry to Dupont/ Pioneer by email

I sent an email to this address on Sunday, August 6, 2000. 6:55 a.m. asking simply why high oil corn is sterile:

http://www.pioneer.com/pioneer_info/forms/writeus.htm

Then I send a 2nd email asking:

1. What percentage of the oil is contained in the embryo; and
2. What percentage of the kernel is embryo at harvest time.

Wyffels site is deceptive and intrusive

I went to the Wyffels site. They invite us to ask them specific questions. What a lie!!! First they wanted me to "register" with my name and email. Then to phase 2 with more specific email and user ID's and then to phase 3 where they want me to inventory all my livestock and grain for them, tell him my date of birth, and generally give them all the critical information about myself and farming program. In short, **they are not giving me information, they are gathering information!! Typical tactic of bureaucrats!**

Inquiry to University of Illinois by email

At 7:30 a.m. Sunday 5 August 2000I sent the following email to: <swansonb@uiuc.edu>:

I am a 4th generation Illinois farmer and a graduate of the University of Illinois at Urbana with a degree in Agricultural Engineering.

With my 2 brothers I farm 2000 acres in Illinois in 3 counties.

[5]What a deceptive euphemism! The simple truth is that the pollinators have tiny ears. They give us 2 kinds of seeds: one pink with no pollen - and one blue with no ears. This assures that nobody will be able to breed either the pink or the blues with themselves.

Greed and Seed. Corporate ficta by stealthy encroachment diminish our self-sustaining lifestyle by designing disguised sterile seeds. Farmers don't realize that they can hot-wire the seeds legally. F1 generation seed varieties are not protected by law; that's why Dekalb makes the seeds sterile.

I have the following questions about high oil corn. Please direct me to the person who can answer these questions.
Question #1: Why is high oil corn sterile?
Question #2: When did the **Illinois High-Oil selection program** start - and was it tax-supported?
Question #3: When does the corn embryo stop growing and why? In particular, are plant auxins or hormones involved?
Question #4: Are high oil corns generally longer season varieties?
Question #5: In general, what other factors besides length of season affect embryo size?
Question #6: What factors affect embryo size and what is the sensitivity of each factor?
Thanks for your cooperation.
In case you haven't caught my drift yet, I think that Illinois taxpayers are being cheated by the robber barons again. High oil corn should be heirloom seeds. The taxpayers have likely paid for the research and now Dupont locks up the profit by the outrageous method of selling seeds that produce a sterile crop - thereby insuring dependence on corporate ficta - - until we figure it out.
Attorney Douglas Palaschak

Another big corporate lie - the oil comes from the embryo which, of course depends on pollen from the blue kernels

I have handled corn for many years - and I have shoveled corn from corn bins. I observe that high oil corn is, well, oilier - and less dusty when I shovel it. The oil likely comes from the cob also! My point is that whatever the traits, they show up in the F1 phenotype independently of the blue seed!! The embryo oil story is to steer us away from the truth which is this: the gender specific sterile pink and blue seeds have the purpose of ensuring sterility. They are instruments of oppression! They are not critical to high oil.

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Players in the sterile seed wars

Attorney Richard Lewis, a US lawyer who plans to take legal action against Monsanto. Mentioned in BBC article.

Kenny and Becky McComb. Local folks who sell sterile seeds and invest their own money in a warehouse so that Monsanto can make exorbitant profits and further enslave us. Kenny and Becky already paid taxes years ago to pay for the Illinois high-oil selection program. Now Monsanto swooped down and put a genetic lock on the benefits of the taxpayer funded program. This is a good example of the short-sighted thinking that will put McCombs and other farmers out of business. They don't like big corporation but they are slaves to them. The McComb family had a balanced diversified dairy and grain farm years ago but gave up the dairy business as did many local farmers in order to devote all their labor to corn which is now priced only 5 times higher that it was during the lowest prices of the great depression of the 1930's.

Monsanto. These are the folks who make a living selling stuff that kills indiscriminately. Now they have bought Pioneer seed. It is time to resume growing our own seeds, folks!

Greed and Seed. Corporate ficta by stealthy encroachment diminish our self-sustaining lifestyle by designing disguised sterile seeds. Farmers don't realize that they can hot-wire the seeds legally. F1 generation seed varieties are not protected by law; that's why Dekalb makes the seeds sterile.

Research regarding: The Terminator Gene

From: http://www.bio.indiana.edu/people/terminator.html

How the Terminator terminates:

an explanation for the non-scientist of a remarkable patent for killing second generation seeds of crop plants

by

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This paper is one in a series of essays meant to stimulate and inform discussion of the subject. The author invites readers to correspond with her directly if they have comments or questions about her interpretation of the Terminator patent.

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Introduction

Genetically modified organisms (GMOs) have become a commercial reality in agriculture. For example, it is estimated that in 1998 over 18 million acres in the United States will be planted in Roundup Ready® soybeans, which were first introduced in 1996 (Horstmeier 1998). These soybeans are engineered by Monsanto Corporation to contain a bacterial gene that confers tolerance to the herbicide glyphosate, or Roundup® , also made by Monsanto. Only two years after the introduction of Roundup Ready® soybeans, over 30% of the corn and soybeans planted in the United States, and close to 50% of the canola planted in Canada, have been genetically engineered to be either herbicide or pesticide resistant.

Monsanto and the other companies that have invested heavily in biotechnology in the last two decades are starting to make some money after years of promises without products, and they are aggressively protecting their patented seeds. In a recent issue of the *Farm Journal* (Monsanto 1997), Monsanto ran a full page advertisement asking farmers to respect the company's property rights:

> ***It takes millions of dollars and years of research to develop the biotech crops that deliver superior value to growers. And future investment in biotech research depends on companies' ability to share in the added value created by these crops. Consider what happens if growers save and replant patented seed. First, there is less incentive for all companies to invest in future technology, such as the development of seeds with traits that produce higher-yielding, higher-value and drought-tolerant crops....In short, these few growers who save and replant***

Greed and Seed. Corporate ficta by stealthy encroachment diminish our self-sustaining lifestyle by designing disguised sterile seeds. Farmers don't realize that they can hot-wire the seeds legally. F1 generation seed varieties are not protected by law; that's why Dekalb makes the seeds sterile.

patented seed jeopardize the future availability of innovative biotechnology for all growers. And that's not fair to anyone.

In the future, companies and government breeders who genetically engineer crops may not have to ask for such compliance. If the procedure outlined in a recent patent comes to fruition and is widely used, plant variety protection will be biologically built into the plants themselves.

In March of 1998, a seed company later to be purchased by Monsanto, Delta and Pine Land Company, in collaboration with the United States Department of Agriculture, was awarded U.S. Patent Number 5,723,765: Control of Plant Gene Expression. Although the patent is broad and covers many applications, one application favored by the patent's authors is a scheme to engineer crops to kill their own seeds in the second generation, thus making it impossible for farmers to save and replant seeds.

This "invention" has been dubbed the "Terminator Technology" by Rural Advancement Foundation International (RAFI), and that group of researchers have analyzed some of the technology's serious social, economic and environmental implications (RAFI 1998). However, many of the consequences of Terminator cannot be fully appreciated without an understanding of the science behind the invention. In this paper, I outline the steps involved in engineering Terminator Technology into a specific crop. After explaining the process, I then discuss which details might have the devil in them.

Overview

To help describe the Terminator procedure, I have confined the explanation to only one of the many possibilities covered by the patent. The example I have chosen is cotton seed, which previously has been genetically-engineered with a unique trait, herbicide tolerance. In my discussion, I have assumed that to ensure that the descendants of the herbicide tolerant seeds are not used without compensation to the seed company, the company has additionally genetically engineered the cotton with Terminator. Although this is a hypothetical case -- Terminator cotton is not yet on the market, after all -- all the components of the procedure have been shown to function, at least in the text of the patent for Terminator.

Cotton is not often sold as a hybrid seed, and is thus a likely candidate for Terminator protection. By way of contrast, corn is usually planted as a hybrid, and thus has some measure of variety protection already. This is because the first generation of a hybrid is genetically fairly uniform, and has been bred to have desired characteristics that are not present in either parent alone. When these hybrids make seeds, however, the second generation is quite variable because of the shuffling of genes that occurs during sexual reproduction. Industrial agriculture requires uniformity, because the plants must dovetail with mechanization. Therefore, industrial farmers who grow corn usually buy new seed every year.

There are several major crops which usually are not grown from hybrid seeds. These include wheat, rice, soybeans, and cotton. Farmers often save the seeds from these crops, and may not go back to the seed company for several years--or longer, in some parts of the world-- to purchase a new variety.

It would be a big boost to seed company profits if people who now grow non-hybrid crops would have to buy new seed every year. This may have been the major incentive for developing the Terminator Technology.

There likely were other reasons for developing Terminator. One reason may relate to the way in which Terminator's effect differs from hybridization. When Terminator is used, the second generation is killed. With hybridization, the second generation is variable, but alive; and any genes present in the hybrid

will be present in the second generation, although in unpredictable combinations. Therefore, a plant breeder who wanted to use the genetic material from the hybrid in his or her own breeding program could retrieve it from these plants. With Terminator, the special genes, such as the herbicide tolerance of my example, would not be easily available for use by competitors.

Another reason sometimes cited for using Terminator in combination with a genetically-engineered variety is to keep the GMOs from "escaping" into the environment. Many critics of biotechnology cite problems with releasing GMOs into the wild, noting that their effects on ecosystems and their members would be difficult to predict (Rissler and Mellon 1996). Having all of the second generation seeds die would circumvent this problem altogether.

Rough Sketch and Review

Terminator is a complicated process to understand and it helps to review beforehand some of the basic information about how genes function during the life-cycle of a plant. Readers with a good grasp of molecular biology may want to skip the review section (A simplified version of basic biological processes) following the general description and proceed directly to the details of the Terminator Technology.

General Description of Terminator in Cotton

In the cotton example, the goal is to develop a variety of cotton that will grow normally until the crop is almost mature . Then, and only then, a toxin will be produced in the (seed) embryos, specifically killing the entire next generation of seeds.

The system has three key components: 1. A gene for a toxin that will kill the seed late in development, but that will not kill any other part of the plant. 2. A method for allowing a plant breeder to grow several generations of cotton plants, already genetically-engineered to contain the seed-specific toxin gene, without any seeds dying. This is required to produce enough seeds to sell for farmers to plant. 3. A method for activating the engineered seed-specific toxin gene after the farmer plants the seeds, so that the farmer's second generation will be killed.

These three tasks are accomplished by engineering a series of genes, which are all transferred permanently to the plant, so that they are passed on via the normal reproduction of the plant.

A simplified version of basic biological processes

A plant starts life as a single cell, an egg that has been fertilized by sperm which has been delivered to the egg by the pollen. This first cell divides many times to form the tissues and organs characteristic of the species. The process of going from a single cell to an adult is called development. As development

proceeds, cells become different from each other and change. Cells in the leaf become distinct from cells in the root, for example. Most of the differences can be attributed to changes in the kinds and amounts of proteins made in the cells, because many of the structures in cells are made of proteins, and most of the processes that occur are influenced by enzymes, which are also proteins. Thus, scientists who study development spend a lot of effort describing protein patterns.

By studying which proteins are present in different tissues and organs, biologists have learned that each cell has several thousand different proteins, but most of the proteins are very rare in the cell. A few hundred proteins may be moderately abundant, and a few may be quite abundant. Also, some proteins are found in all kinds of cells and at all times in development, whereas other proteins are only present in a particular tissue, or at a specific time. For example, the gluten proteins responsible for the elasticity of bread dough are found only in the seed,and are present there in very large amounts. In contrast, the enzyme that splits glucose as a first step in releasing energy is found in all living cells, but in fairly small amounts.

Some proteins are made in response to environmental changes, such as increases in temperature, and thus may or may not be present during the life of a particular plant.

The most common way for a cell to control how much of which kinds of proteins are present is to control which genes are functioning (Rosenfeld et al. 1983). Proteins are chains of different amino acids, and the order of amino acids and the length of the chain are unique for each kind of protein. Each unique amino acid sequence is specified by a code on a chromosome in the cell's nucleus. The code is made of DNA. For the purposes of this discussion, a gene is a piece of DNA that contains the code for a specific protein. Genes are present in specific places along the length of the chromosomes.

It turns out that just about every cell has two full sets of genes (one set of chromosomes from the sperm and one from the egg), which code for the proteins made in all of the tissues and organs that an individual plant will need during its life cycle. However, only those genes whose proteins are needed in a particular cell will be used by that cell. These are the active genes. The other genes just sit there on the chromosomes, inactive in that cell, but active somewhere else in the plant.

Whether a gene is active or not depends on complex interactions between the DNA and other molecules in the cell. Specifically, a typical gene can be divided into parts. The first part is a stretch of DNA responsible for interacting with the cell or the environment, and is called the promoter. The second part actually contains the code for the order of amino acids in the protein, and is called the coding sequence. When the gene is active, the promoter is interacting with other molecules in a way that allows the coding sequence to direct the synthesis of a specific protein (through a complex set of steps).

Genetic engineering can be defined as the process of manipulating the pattern of proteins in an organism by altering genes. Either new genes are added, or existing genes are changed so that they are made at different times or in different amounts.

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Because the genetic code is similar in all species, genes taken from a mouse can function in a corn plant; and so on. Also, promoters from one coding sequence can be removed and placed in front of another coding sequence to change when or where the protein is made. For example, when the promoter for casein, the major protein in milk, is removed and put in front of the coding sequence for human growth hormone, it causes human growth hormone to be made in cow's milk instead of casein. Of course, in order to make human growth hormone in cow's milk, the engineered gene has to be incorporated into the genetic material of the cow. There are many ways to do this. I will not go into the details here.

The general process of moving genes between species is called transformation, and the result is a transgenic organism. Lately, transgenic organisms are being called genetically modified organisms, or GMOs.

Details of the Terminator technology

The key to Terminator is the ability to make a lot of a toxin that will kill cells, and to confine that toxin to seeds.

To accomplish this, in the case of our cotton example, the plan is to take the promoter from a gene normally activated late in seed development in cotton, and to fuse that promoter to the coding sequence for a protein that will kill an embryo going through the last stages of development.

In the Terminator patent, the authors use a promoter from a cotton LEA (Late Embryogenesis Abundant) gene. This gene is one of the last to be activated. Its protein is not made until the seed is full-sized, has accumulated most of its storage oil and protein and is drying down in preparation for the dormant period in between leaving the parent plant and germinating in the soil. If the engineered gene has the same pattern of expression, LEA-promoter-directed proteins should be made in high quantities, only in seeds, and late in development. It is important for the cotton seeds to go through most of their growth before the toxin acts, because the cotton fiber is an outgrowth of the seed coat and is made as the cotton develops. Further, after the cotton fibers are removed (for human use), the seed is then crushed for oil and protein, both of which are eaten by people and livestock. The cotton crop would be of little use to a farmer if the seeds did not mature normally before dying.

As for a toxin, there are several possibilities discussed in the patent, but the patent authors recommend a ribosome inhibitor protein (RIP) from the plant Saponaria officinalis. This protein works is small quantities to stop the synthesis of all proteins. Since cells need proteins for almost everything, they die fairly quickly when they can't make proteins. According to the patent, the RIP is non-toxic to organisms other than plants.

The manipulations of DNA required to engineer a seed-specific promoter/toxin coding sequence gene are done in test-tubes and bacteria, and then the altered gene is put into a cotton plant, using one of several possible well-established methods.

However, this is not all there is to it. It this were all, then as soon as the

transgenic plant went through its life cycle and came around to seed development, that would be the end of the project. There would soon be no viable seeds to sell to farmers.

The Terminator patent offers an ingenious method for keeping the toxin gene from being active until long after the farmers plant their crops. The trick is accomplished by inserting a piece of DNA in between the seed-specific promoter and the toxin coding sequence that blocks it from being used to make protein.

At either end of the blocking DNA are put special DNA pieces that can be recognized by a particular enzyme, such as the enzyme called recombinase. Whenever the recombinase encounters these DNA pieces, the DNA is cut precisely at the outside of each piece, and the cut ends of the DNA fuse together, with the result that the blocking DNA is removed. When this happens, the seed-specific promoter is right next to the toxin coding sequence, and is able to function in making the toxin. But this does not happen immediately. Toxin will not be produced until the end of the next round of seed development, because that is when the LEA promoter is active.

Thus, after the recombinase enzyme does its work, the plant grows normally from germination, through growth of stems, leaves, roots, and all the way through flower formation, pollination and most of seed development. Then, on cue, the seeds die.

All this accomplished, there remains one more problem: How to grow several generations of the genetically-engineered variety so that its seed can be multiplied to sell to farmers?

The Terminator patent solves the dilemma by preventing recombinase from acting until just before the farmers plant their seeds. The patent holders give several possible ways to do this, but concentrate on the following procedure: They propose putting a recombinase coding sequence next to a promoter that is always active -- in all cells, at all times -- but that is repressed. The promoter can be made active again -- derepressed – by a chemical treatment. Therefore, the seed sellers can treat the seeds right before planting, thus allowing the recombinase to be made then, but not before.

One of the repressible promoter systems they discuss in detail is controlled by the antibiotic tetracycline. A gene that makes a repressor protein all of the time would be put into the cotton plant, along with a recombinase gene that has a promoter engineered to be inactivated by the repressor protein. Under most conditions, then, the repressor would interact with the recombinase gene; no recombinase would be made; the toxin gene would be blocked; and no toxin would be made, even during seed development when the LEA promoter normally would be active.

To activate the toxin gene, seeds just starting to germinate would be treated with tetracycline, right before they are sold to farmers. The tetracycline would interact with the repressor protein, keeping it from interfering with production of recombinase. Recombinase would be made, cutting out the blocking DNA from the toxin gene. The toxin gene would now be capable of making toxin, but would not actually do so until the end of seed development. The next generation would thus be killed.

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To accomplish the Terminator effect in cotton, then, three engineered components must all be transferred into a cotton plant's DNA:

1. a toxin gene controlled by a seed-specific promoter, but blocked by a piece of DNA in between the promoter and the coding sequence;

2. a repressor protein coding sequence with a promoter that is active all of the time; and

3. a recombinase coding sequence, controlled by a promoter that would be active at all times, except that it is also regulated by repressor protein, which can be overridden with tetracycline.

The actual transfer of genes into the plant is not a very precise operation. Any one of a variety of methods can be used: the genetically-engineered DNA can be injected into the nucleus of a cotton cell with a tiny needle, or plants cells can be soaked in the DNA and electrically shocked, or the DNA can be attached to small metal particles and shot into the cells with a gun, or viruses and bacteria can be engineered to infect cells with the DNA. In all cases, the genetically-engineered DNA has to find its way to the nucleus, and become incorporated into the plant chromosomes. The number of copies of the inserted genes and their locations on the plant chromosomes are unpredictable, and how well the new genes will function hangs in the balance.

It takes a lot of effort to locate cells that have incorporated DNA in significant amounts and in locations that work. Basically, whole plants have to be regenerated from the cells or tissues that were transformed with the foreign DNA, and then each plant has to be tested for the presence and function of the new genes.

After plants with well-functioning new genes are identified, they are then mated in combinations that result in a line of cotton where both sets of chromosomes (in all of the offspring) have all the components necessary for Terminator to function. These plants are mated together to make a large quantity of seed for sale.

In effect, Terminator Technology gives the seed producer the ability to determine when to set Terminator in motion. Until the recombinase is made, the cotton plants grow normally. After recombinase is made, the second generation of seeds is killed, protecting the patented variety.

Some problems that may crop up with the use of Terminator

The patent on this technology is complex. I have described only one of many possible applications of the procedure. Clearly, one cannot determine ahead of time all possible biological ramifications of implementing the patent. However, potential problems have already been noted (Ho 1998). I deal with some of them below.

Will the Terminator spread to other plants?

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It is likely that Terminator will kill the seeds of neighboring plants of the same species, under certain conditions. However, the effects will be confined to the first generation, and will not be able to spread to other generations. The scenario might go like this: when farmers plant the Terminator seeds, the seeds already will have been treated with tetracycline, and thus the recombinase will have acted, and the toxin coding sequence will be next to the seed-specific promoter, and will be ready to act when the end of seed development comes around. The seeds will grow into plants, and make pollen. Every pollen grain will carry a ready-to-act toxin gene. If the Terminator crop is next to a field planted in a normal variety, and pollen is taken by insects or the wind to that field, any eggs fertilized by the Terminator pollen will now have one toxin gene. It will be activated late in that seed's development, and the seed will die. However, it is unlikely that the person growing the normal variety will be able to tell, because the seed will probably look normal. Only when that seed is planted, and doesn't germinate, will the change become apparent.

In most cases, the toxin gene will not be passed on any further, because dead plants don't reproduce. However, under certain conditions I will discuss later, it is possible for the toxin gene to be inherited.

In any case, dead seeds, where they occur, would be a serious problem for the farmer whose fields are close to the Terminator crop. How many seeds die will depend on the degree of cross-pollination, and that is influenced by the species of plant, the variety of crop, weather conditions, how close the fields are to each other, and so on. If many seeds die, it will make saving seed untenable for the adjacent farmer. Even if only a few seeds die, they will contain the toxin and any other proteins engineered into the Terminator-protected variety. These new "components" may make the seed unusable for certain purposes.

Will seeds containing the toxin made by Terminator be safe to eat?

In fact, the effects of the toxin on the uses of the seed are a serious question. This issue is discussed in the patent at the end of page 8. There the authors say that "[i]n cotton that would be grown commercially only selected lethal genes could be used since these proteins could impact the final quality of seeds....If the seed is not a factor in the commercial value of a crop (e.g., in forage crops, ornamentals or plants grown for the floral industry) any lethal gene should be acceptable."

This is dangerously reductionist thinking, because people are not the only organisms that interact with seeds. In forage crops, for example, not all of the forage is always harvested before seeds are mature, depending on conditions. How will a particular toxin affect birds, insects, fungi and bacteria that eat or infect the seeds? If a forage crop with toxin-laden seeds is left in the field, and the seeds come in contact with the soil, how will that affect the ecology of soil organisms? These are important questions because a variety of specific organisms are necessary for the healthy growth of plants. Further, a floral or ornamental crop with Terminator may happen to grow near a related crop where the seeds are used, and if pollination occurs, the seeds will contain toxin without that farmer knowing. The toxin could end up in products without anyone's knowledge. For example, an ornamental sunflower could spread Terminator to an

oilseed variety, and then the toxin could end up in edible oil or in sunflower seed meal.

Other potential problems with making novel toxins in edible seeds have to do with allergenicity. The RIP toxin described earlier may not be directly poisonous to animals, but may cause allergic reactions. If the seeds are being mixed with the general food supply, it will be difficult to trace this sort of effect.

Will dead seeds have different properties than living seeds?

Although Terminator is supposed to kill seeds very late in development, it is not known what other effects, if any, Terminator may have. Will the dead seeds be more or less easy to store? Perhaps they will respond differently to changes in humidity, or to infection with bacteria and fungi. If dead seeds do behave differently, even a few "bad apples may spoil the barrel", and the problem of partial killing of neighbors' crops may be even more of an issue.

There also may be nutritional changes in seeds that are killed late in development. Although most of their oils and proteins are present, it is possible that seeds will start to deteriorate or will lack some minor component that is important. The functional properties of specific molecules in foods, for example, are just beginning to be appreciated and are likely to play important roles in preventing diseases. These possibilities require further study.

Will the use of an antibiotic to treat seeds before planting be a problem?

If seed companies do indeed use tetracycline to set the cascade of toxin-gene activation in motion, then they will have to soak a very large amount of seed in the antibiotic. Basically, every seed planted by the farmer will have to be so treated. How many pounds of cotton seed or wheat seed are needed to plant an acre, and how many acres will be put in? In fact, I am having trouble visualizing exactly how this will work, because the seeds must be treated with tetracycline after they have matured completely (so that the toxin won't be made in the first generation), but before planting (otherwise, the farmer would have to apply antibiotic to the plants). Handling seed that has been soaked seems like a tricky process to me, but perhaps there are viable methods. At any rate, even at low concentrations there will be a lot of tetracycline to handle and dispose of, and large-scale agricultural uses of antibiotics are already seen as a threat to their medical uses. Further, the increased tolerance of bacteria, residual or waste antibiotics may also have a harmful effect on soil ecology.

Again, I am dismayed by the reductionist tone of the discussion of these issues in the patent. On page 7, line 30, the authors state that "since tetracycline has no harmful effects on plants or animals, its presence would not otherwise impede normal development of the plant, and residual amounts left on the seed or plant after treatment would have no significant environmental impact." Although it is true that tetracycline has no direct effect on animals, such as humans, the indirect effects can be severe. This is because we depend on a myriad of interactions with microorganisms for our daily functioning, from proper digestion to protection from pathogens. The patient information sheet that comes with any prescription for tetracycline is convincing evidence that tetracycline is not

harmless to use.

Plants too depend on microorganisms. They do not function normally without a web of interactions, and indirect effects from substances like tetracycline may prove to be important.

Will Terminator prevent genetically modified organisms from escaping?

Clearly, farmers would not want plants genetically modified with Terminator to spread into surrounding areas or to grow from seed as unexpected "volunteers" in another season. They also would not want the Terminator plants to exchange genes with other varieties or related species. Interestingly, Terminator has been proposed as a method to prevent just such escapes of GMOs and their genes. However, Terminator is not likely to function well for such purposes.

First, it is unlikely that any tetracycline treatment will be 100% effective. For various reasons, some seeds may not respond, or take up enough tetracycline to activate recombinase. In such cases, the plants growing from the unaffected seeds would look just like all the others, but would grow up to make pollen carrying a non-functional toxin gene. The pollen would also carry the genetically-engineered protein supposedly being protected by Terminator, such as herbicide-tolerance. If this pollen fertilized a normal plant, the seed would not die, because no toxin would be made, but the seed would now have the herbicide-tolerance gene and could pass that on. Thus a trait from the GMO would have escaped through the pollen.

Of course, self-fertilized seeds of the Terminator line would also survive in the second generation, if the tetracycline treatment failed, and could be carried off by birds, or grow as "volunteers" the next season.

Another possibility is that even successfully activated Terminator genes may fail to make toxin because of a phenomenon called gene silencing. In experiments with other GMOs, it was discovered - quite unexpectedly - that in some cases, previously active (introduced) genes can suddenly stop working. If this phenomenon occurred with seeds containing the Terminator gene, plants containing the silenced toxin gene could grow and reproduce, perhaps for several generations. Thus, Terminator and other engineered genes could be carried into the future, to be expressed -- perhaps still unexpectedly -- at some later time.

Depending on Terminator to prevent GMOs or their traits from spreading unintentionally is unrealistic. "Escapes" are even more likely to occur in some of the other patent applications, where the genetic components of Terminator will reshuffle during sexual reproduction, and a portion of the seeds will lack the toxin altogether, and thus be viable.

Organisms are always changing; will Terminator mutate and change characteristics is some dangerous way?

If plants were to carry silenced toxin genes, as described above, those genes

might suddenly be activated again, causing seeds to die unpredictably in subsequent generations. By the time the phenomenon occurred, however, it might be difficult to ascribe the cause to Terminator.

Another possibility is that the Terminator may be activated at a different time or place in the plant. Fortunately, such events will be self-limiting, because the plants will die. However, for farmers, the instability and unpredictability of GMOs has already been an economic problem. Genes have an ecology--a complex way of interacting with themselves and the environment--that can interfere with the simple linear logic of genetic engineering. A recent article in the Ecologist discussed this problem in detail (Ho et al. 1998).

Final thoughts

These are a few of the potential snags that I see in the use of Terminator Technology. My analysis was based on the details of only one of the applications described in the Terminator patent. I am confident that some of the particular problems I have discussed will be addressed by the seed industry before they implement the technology. However, I am also sure that there will be other problems no one yet foresees or imagines. There will be surprises. But whatever the potential biological problems presented by Terminator, in my view they are small in comparison to Terminator's economic, social, and political ramifications (See RAFI 1998).

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BBC Oct 5, 1999.

Sci/Tech **Terminator gene halt a 'major U-turn'**

Future work on the technology has not been ruled out
The decision by the biotechnology giant Monsanto never to commercialise so-called "terminator gene" technology for crops has been called "a major U-turn that will send shock waves across the industry", by the charity Christian Aid.

Scarlett Foster of Monsanto: "We were hearing concerns about what is a very new technology"Environmental group Friends of the Earth also hailed the announcement saying Monsanto had been forced to "respond to enormous worldwide opposition to its plans".

But a spokesman for the European Association for BioIndustries dismissed much of the criticism of genetically-modified crops as "scandalous propaganda" and said many non-genetically-modified (GM) crops did not produce viable seeds either.

Inserting terminator genes into crops would prevent them from producing fertile seeds, meaning farmers would have to buy new seeds, rather than saving part of their harvest to plant next year's crop.

Monsanto said that after consultations with experts and customers, it was making a public commitment never to commercialise sterile seed technologies.

The commitment came in a letter from Monsanto chairman Robert Shapiro to the philanthropic organization, the Rockefeller Foundation.

> The letter said: **"Though we do not yet own any sterile seed technology, we think it is important to respond to those concerns at this time by making clear our commitment not to commercialise gene protection systems that render seed sterile."**

The technology might still be used in internal research, the company said. And the genes could help create plants in which certain characteristics can be switched on and off.

Andrew Simms of Christian Aid, a development charity, said the move was a major reverse: "Terminator technology was the lynchpin of a strategy to protect corporate royalties in developing countries.

Cross pollination by bees could spread 'Terminator' plant genes"Up until last year, the US Department of Agriculture [who own a key patent] expected that within a short period of time you would not be able to find seeds that did not use terminator technology."

Pete Riley of Friends of the Earth said the move was an attempt by the food giant to win favor in the press. "It is only a gesture and it will cost them nothing. There is nothing to stop them introducing it at a later date."

The firm does not at present own any sterile seed technology but it is expected to acquire it through its long-planned acquisition of cotton seed breeder Delta and Pine Land, which co-owns the patents with the US Department of Agriculture (USDA). The purchase is awaiting regulatory approval in the US.

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Patrick Holden from the Soil Association: "This isn't the end of the matter"

Monsanto spokeswoman Scarlett Foster said the company would refuse to license the USDA-Delta project if the cotton seed company was acquired.

Paul Moyes, spokesman for the European Association for BioIndustries, said that the effect of terminator technology was not anything new: "Plant breeders and farmers have preferred hybrid seeds for more than 30 years because they were more productive. This means they have to buy their seeds again every year because hybrid seeds can only be used once."

But Gordon Conway, president of the Rockefeller Foundation, approved of the development. "We welcome this move as a first step toward ensuring that the fruits of plant biotechnology are made

available to poor farmers in the developing world," Mr Conway said.

And **Richard Lewis, a US lawyer who plans to take legal action against Monsanto**, says many farmers are already prohibited by their contracts with the firm from re-planting the GM seeds that they harvest.

From file #3131

Douglas Palaschak's prioritized list of books that farm folk and an enlightened populace should own and read weekly:

1. **The Robber Barons.** 1935. Matthew Josephson. A must. A famous old book.
2. ***A People's History of the United States*** by Howard Zinn. Available at Barnes and Noble or from Loompanics Press, box 1197 Port Townsend Washington. Superb book. Gladys has a copy.
3. ***House of Morgan***. Big thick book. Tells how J.P. Morgan thwarted competition, bribed, manipulated the currency, and plundered - and set the pattern for banking today. There are 2 books with the same title. This is the newer one. About 1989?
4. ***John Steinbeck***. His 1996 biography by Catherine Reef. 150 pages. Full page photos showing the places about which ***Grapes of Wrath*** was written. Suitable for students.
5. ***Secrets of the Temple*** - How the Federal Reserve Runs the Country. Paperback.

The roots of our self-sustaining life style: Bishop Hill Story

Charles Nordhoff is the namesake of Nordhoff high school in the mystical, comforting, picturesque, mountain town called Ojai (Oh High.) Fundamentalist Christians condemn Ojai as a "center of eastern mysticism". Ojai is just 10 miles uphill from the ocean at Ventura, California. The following excerpt is a chapter from the **1875** book by Charles Nordhoff entitled ***The Communistic Societies of the United States*** reprinted under the new title ***American Utopias*** in paperback in 1993 By Berkshire House Publishers, Box 297, Stockbridge MA 01262. **800 321 8526.** It is the leading book about communes. Here is what Nordhoff wrote in 1875 in his short chapter entitled "Bishop Hill Commune":

Excerpt regarding Bishop Hill Commune

"I have determined to give a brief account of the Swedish colony at Bishop Hill, in Henry County, Illinois, because, though it has now ceased to exist as a communistic society, its story yields some instructive lessons in the creation and maintenance of such associations. These Swedes began in abject poverty, and in the course of a few years built up a prosperous town and settlement. They rashly went into debt: debt brought lawsuits and disputes into the society, and all three broke it up.

"The people of Bishop Hill came from the region of Helsingland, in Sweden. In their own country

they were Pietists, and Separatists from the State Church, mostly farmers, scattered over a considerable district, but united by their peculiar doctrines, and by the efforts of their preachers. I am told that they came into existence as a sect about 1830; in 1843 their chief preacher was a man of some energy, Eric Janson by name; and he taught them the duty of living after the manner of the Primitive Christian Church, inculcating humble and prayerful lives, equality of conditions, and community of property.

"Their refusal to attend church, and to submit themselves to its ordinances, excited the attention of the government, which, probably also alarmed at the phrase "community of goods," began to persecute them with fines and imprisonment. Police officers were sent to break up their congregations; they imagined themselves threatened with confiscation; and in 1845 they sent on of their number, **Olaf Olson**[6], to the United States, to see if they could not here find land on which to live in peace and freedom. Olson's inquiries led him to Illinois; he selected Henry County as a favorable situation; and in 1846, on his report, the people determined to emigrate in a body, the few wealthy agreeing to pay the expenses of the poor. They say that when they were ready to embark, they were refused permission to leave their country, and Jonas Olson, one of their leaders, had to go to the king, who, on his prayer, finally allowed them to depart.

"The first ship-load left Galfa in the summer of 1846, and arrived at Bishop Hill in October of that year. Others followed, until by the summer of 1848 they had eight hundred people on this spot - which they named from an eminence in their own country.

"They appear of have spent most of their means in the emigration, for they were able during the first year to buy only forty acres of land, and for eighteen months they lived in extreme poverty - in holes in the ground, and under sheds built against hillsides; and ground their corn for bread in handmills, often laboring at this task by turns all night, to provide meal for the next day. A tent made lf linen cloth was their church during this time; and they worked the land of neighboring farmers on shares to gain a subsistence. Living on the prairie, fever and ague attacked them and added to their wretchedness.

"By 1848 they had acquired two hundred acres of land, but were $1800 in debt, which they had borrowed to keep them from starving; but in this year they built a brick church, and they now worked a good deal of land on shares. In 1849, they begin to build a very long brick house, still standing, which served them as kitchen and dining hall. In the same year Jonas Olson, a preacher, took eight young men, and with the consent of the society went to California to dig gold for the common interest. He returned after a year, unsuccessful.

"In 1850 Eric Janson, their leader, was shot in the Henry County court-house, while attending a trial in which a young man, not a member of the community, claimed his wife, a girl who was a member, and who he wished to take away. I do not know the merits of the case, nor is it important here. During this year Olaf Janson returned from Sweden with several thousand dollars which he had been sent to collect - being debts due some of the members; and this money, which enabled them to buy land, appears to have given them their first fair start.

"At this time, though they were still poor, they had built a number of brick dwellings, had set up shops for carpentry, blacksmithing, wagon-making, etc.; were raising flax, selling the seed, and making the fibre into linen, some of which they sold; and they had a few cattle, and a worn-out saw-mill. They had set up a school, even while they lived "in the caves" and now hired an American teacher.

"In 1853 they got an act of incorporation from the Illinois Legislature, which enabled them to hold land and transact business as an association, and in the name of trustees; until that time all they owned was held in the name of individual members. IN the same year they made a contract to raise, during two years, seven hundred acres of broom corn, for which they received in cash on delivery fifty dollars a ton. As yet

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[6]Presumably this is not the Olaf Olson who was the Father of Mabel Olson. He was from Norway.

they had no railroad, and had to haul their corn fifty miles. At this time, too, they began to improve their breeds of cattle; paid high prices for one or two short-horn bulls, and were soon famous in their region for the excellence of their stock. They also made wagons for the neighboring farmers, and established a grist-mill.

"In 1844-5 they took a contract to grade part of the Chicago, Burlington, and Quincy Railroad line, and to build some bridges; and as they were able to put a considerable body of their young men upon this work, it brought them in a good deal of money. They now began to erect brick dwellings, a town-hall, and a large hotel, where they for a while did a good business. They made excellent brick and all their houses are very solidly built, plain, but of pleasing exteriors. The most remarkable one is the long dining-hall and kitchen, with a bakery and brewery adjoining. In the upper story of this building a considerable number of families lived; in the lower story all the people - to the number of a thousand at one time - ate three times a day.

"They were now prospering. In 1859 they owned 10,000 acres of land, and had it all neatly fenced and in excellent order. They had the finest cattle in the state; and their shops and mills earned money from the neighboring farmers.

"The families lived separately, but all ate together. They received their clothing supplies at a common storehouse as they needed them, and labored under the direction of foremen. Their business organization was always loose. They had no president or single head. A body of trustees transacted business, and made reports to the society, not regularly, but at irregular intervals. There seems, too, to have been a speculative spirit amount them, for while in 1859 they owned 10,000 acres of land and a town, which must have been worth at least $300,000.00, as the land was all fenced and improved, and the town was uncommonly well built[7], they owed at that time, or in 1860, between $80,000 and $100,000.

"Their religious life was very simple. They had no paid preacher, but expected their leaders to labor during the week with the rest. On Sunday they had two services in the church - at 10 in the morning, and between 6 and 7 in the evening. At these, after singing and prayer, the preacher read the Bible, and commented on what he read. On every week-day evening, unless the weather was bad, they held a similar meeting, which lasted an hour and a half. They had no library, and encouraged no reading except in the Bible, teaching that the most important matter for every man was to get a thorough understanding of the commandments of God. They had for a little while a newspaper, and they printed at the neighboring town of Galva[8], which was their business centre, an edition of their hymn book[9]. They discouraged amusements, as tending to worldliness; and though they appear to have lived happily and without disputes, about 1859 they discovered that their young people, who had grown up in the society, were discontented, found the community life dull, did not care for the religious views of the society, and were ready to break up the organization.

"When this discontent arose, the looseness of the organization was fatal. With a more compact and energetic administration, either the dissatisfied elements would have been eliminated quietly, or the causes of dissatisfaction, main, as far as I could understand, the dullness of the life and the lack of amusements,

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[7]Footnote by Charles Nordhoff: Between $400,000 and $500,000 was their own valuation; and in 1860 a report given in one of the briefs of a lawsuit gives their assets at $864,000, and their debts at less than $100,000.

[8]Footnote by Palaschak: They came from Galfa, Sweden. Therefore it would seem that they named Galva, Illinois, after Galfa, Sweden.

[9]Footnote by Nordhoff: "Nagra Sanger, samt Boner. Forfatade af Erik Janson. Forenade Staterna, Galva, Ills. S. Cronsoe, 1857."

would have been removed[10]. But with the loose organization there appears to have been, what is not unnatural, rigidity of discipline. There was no power any where to make changes. "The discontented ones wanted a change, but no change was possible: it was often discussed."[11] The young people persuaded some of the older ones to be of their mind, and thus two parties were formed; and after many meetings, in which I imagine there were sometimes bitter words, it was determined in the spring of 1860 to divide the property, the Olson party, as it was called, including **b** of the membership, determining with their share to continue the community, while the Janson party determined on individual effort.

"Hereupon **b** of the real and personal property was set apart for the Olson party, but for a whole year the two parties lived together at Bishop Hill. In 1861 the Janson party divided their share among the families composing it; and in the same year the disorganization proceeded another step. The Olson party fell into 3 divisions. In 1862, finally, all the property was divided, and the commune ceased to exist.

In 1860 a receiver had been appointed. In 1861 Olaf Janson was appointed attorney in fact. This became necessary, because, besides the property, there were debts, and when the trustees were removed and a receiver was appointed, the question necessarily came up how the debts should be met. The division of the property was made by a committee of the society, who took a complete inventory, including even the smallest household articles; and at the time there seems to have been no complaint of unfairness. The whole was divided into shares, of which each man received one, and women and children fractional shares. A part of the property was set off, sufficient, as it was then believed, to pay off the indebtedness; but it proved insufficient, and finally each farm given to a member in the partition was saddled with a share if indebtedness; ans as there was poor management after the disorganization began, and as the debt constantly increased by the non-payment of interest, there are no, 13 years after the final partition, heavy lawsuits still pending in the courts against the colony ans its trustees.

"In 1861 the community raised a company of solders for the Union army, furnishing both privates and officers. These fought the war, and one of the younger members after the war was, for meritorious conduct and promising intellect, taken as a scholar at West Point, where he was graduated with honor.

"At present, Bishop Hill is slowly falling into decay. The houses are still mostly inhabited; there are several shops and stores; but the larger buildings are out of repair; and business has centered at Galva, 5 or 6 miles distant. Most of the former communists live happily on their small farms. A Methodist church has been built in the village, and has some attendants, but a good many of the older members have adopted the Adventist or Millerite faith, which appears to revive after every failure of prediction, especially in the West, where people seem to look forward with quite singular pleasure to the fiery end of all things.

"On the whole it is a melancholy story. It shows both what can be achieved by combined industry, and what trifles can destroy such an organization as a communistic society. It shows the extreme importance of a central authority, wisely administered but also implicitly obeyed; able therefore to yield, as well as to act, promptly. The history of these Bishop Hill Communists also shows the necessity of great caution in all financial affairs in a commune, which ought to avoid debt like the plague[12], and to live financially as though it might break up at any moment.

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[10]By Douglas Palaschak: Their discouraging reading was obviously a mistake. Many communes had a common library. They were obviously too obsessed with fanatical belief in God. They should have paid more attention to reading and education. This might have made life more attractive for the young generation - and also might have prepared them for a better grip on their legal and financial mistakes.

[11]By Palaschak: Nordhoff gives us no clue who the speaker of this quote is.

[12]By Palaschak: We see that this cliche is over 100 years old.

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"Not only were debt and the speculative spirit out of which debt arose the causes of the colony's failure, but they have brought great trouble on the people since. Had there been no debt, the commune could have divided its property among the members at any time, without loss or trouble; and I suspect that the possibility of such an immediate division might have induced the people to keep together.

"At any rate, the story of Bishop Hill shows how important it would be to a community agreeing to labor and produce in common for a limited time to keep free from debt.

(End of the Chapter about Bishop Hill.)

Roots of wisdom and protest of neo slavery

An excellent book, more modern, photographically illustrated book about Utopian Communes is ***Not of the World - A History of the Commune in North America*** by Daniel Cohen published in 1973 by Follet, Chicago (suitable for students).

Ancient Czech communes are described in the U.S. Government Printing Office publication entitled ***Czechoslovakia***.

Czech **Jan Huss** who was **burned at the stake** for speaking out against the Catholic church was from Czechoslovakia and his followers were **Taborites**. **Jacob Hutter**, another Czech was **burned at the stake in 1536** in present-day Czechoslovakia. His followers went to Slovakia and then Russia to escape oppression.

The Hutterites

The following excerpt is take from ***Not of the World - a History of the Commune in North America*** by Daniel Cohen, 1973, Follet, Chicago, beginning at page 103:

In today's world the Hutterites remain an amazing anachronism. Their roots go back to the same German religious tradition that had molded the Rappites, Separatists, Amanas, Amish, and other German **nonconformists**. But, from the beginning, the Hutterites seem to have been a communal group. The first Hutterite colony or *Bruderhof*, was established in **1528 in Austerlitz, Moravia**, a region in present-day **Czechoslovakia**. The name of the sect comes from an early leader, **Jacob Hutter**, who was burned at the stake in **1536**. By the end of the 16th century there may have been as many as 20,000 Hutterites.

These quiet, plain-living pacifistic[13] farmers wanted nothing more from the world than to be left alone to pursue their own way of life. But the world kept intruding. At the end of the 16th century their lands became a battleground in the war between Austria and Turkey, and the Hutterites were victimized by both sides. By 1622 they had been driven from Moravia into the neighboring states of **Transylvania and**

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[13]By Douglas Palaschak: Note to Brian Schatz. Regarding your idea of listening to two pieces of music simultaneously, I practice the same methodology with reading. I read two books - not truly simultaneously, of course - but during the same days or weeks. Ideas from one book strike strong chords with another book. Example. In this passage you will hear about chasing peasants from Transylvania. In another book, this one about dreams, I read that humans share many archetype dreams. Legends, especially in oral history, often come from archetype dreams. The legends of monsters being chased by people with torches could have been the story of peasant oppression as modified by the subconscious. The legend evolved and was molded by the archetype dream to become the story of Frankenstein - or some other persecuted monster story.

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Slovakia. But there the Roman Catholic Church began demanding that they convert[14], which many did. The remaining wee forced to flee across the boarder to Wallachia, only to be caught in the middle of the Russo-Turkish War in 1788. Russia welcomed the Hutterites, though by that time the battered sect was down to a mere 123 members. The remnant accepted the invitation to pioneer the plains of the Ukraine.

They prospered in Russia[15] and increased in numbers for a century, but again the world intruded. The Russian government tried to induct members of the sect into the army, so once again they decided to move. In 1847 the 800 Hutterites began a migration to South Dakota, into an area of open plains, not unlike the land they had farmed in the Ukraine. About half of the immigrants abandoned communal life in America when they were offered free land under the Homestead Act. The Homestead Act did not apply to communal groups, so the remaining Hutterites purchased enough land for 3 colonies.

The Hutterite migration went virtually unnoticed at first. The beared, simply dressed men and their wives, clad in old-fashioned dresses and shawls[16], didn't look all that different from other pioneering folk. They spoke German and kept to themselves, but this too was not unusual in a nation of immigrants, particularly on the South Dakota frontier. In fact, for quite a while, their neighbors were not even aware that these German immigrants lived communally. When people thought of them at all, it was assumed that they were some sort of "Pennsylvania Dutch." Mostly they were just referred to as "those people."

For years the Hutterites were left alone, and they flourished. They were not celibate like the Rappites, and unlike the Inspirationists, they did not look upon the absence of children as a sign of godliness. Big families are useful to farmers, and the Hutterites have one of the highest birthrates of any group in the world.

When World War I began, the Hutterites were noticed, not only by their neighbors, who by that time generally disliked and distrusted them, but also by the federal government, which wanted to induct their young men into the army. A number of Hutterites were jailed as conscientious objectors, and two died while imprisoned at Fort Leavenworth. Neighbors, fired by what they said was patriotism, raided hutterite cattle and sheep, because the Hutterites refused to fight or buy Liberty Bonds, and because they spoke German. Faced with the same persecution that had found in the Old World, the Hutterites decided to move across the border into Canada's western provinces. Between the end of World War I and the end of World War II, only a small number of Hutterites remained in the United States, but today a reverse migration is taking place. The attitude toward conscientious objectors is much more favorable in the United States now than it was a half century ago. Besides, in Canada, restrictive laws concerning the amount of land that can be purchased by the communal society have been passed. Individual farmers have a genuine fear of being overrun by these extremely successful and prolific communal farmers."

Farmers with Secret Tunnels harvest 100 acres per day by hand.

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[14]Footnote by Douglas Palaschak. Keep in mind that the Spanish Inquisition, and the other Inquisitions were officially sanctioned by the Pope. The purpose was to expose Jews who had converted to Catholicism to escape persecution. See ***The Spanish Inquisition*** available at Barnes and Noble. I have a copy.

[15]Footnote by Douglas Palaschak. Perhaps this is why Russian Grandfather Palaschak eventually married Slovak Humenick. Perhaps was of Slovak ancestry having migrated to Russia from Slovakia.

[16]The book shows several photos of women wearing babushkas here.

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From ***Yankee Communes*** by Flo Morse, 1971 Harcourt, Brace, Jovanovich.

The following excerpt is from the chapter entitled: The Rappites. Beginning at page 95 we read about the work on their farm on the banks of the Wabash river in Indiana across the river from southern Illinois:

"On the farms and in the shops women were the equals of men and worked side by side with them. Sometimes, swinging sickles, they helped to harvest as much as **100 acres in a single day,** an achievement that earned special wine at *vesperbrot*, their midafternoon lunch and singing break.

In the distant outlying fields the Rappites were overseen by their leader. Sometimes he used a megaphone to prod and direct crews. The English[17] farmers accused him of playing on the field workers' Old World superstitions by means of the **underground tunnels and passageways**. He[18] was said to use the entrances and exits to emerge suddenly, and then disappear, in the middle of a cornfield or potato patch. There, six feet tall and wearing his customary peaked cap, he seemed like a boulder or bush that would mysteriously fade away."

[17]Footnote by Douglas Palaschak. The English farmers were in a commune across the river and 20 miles upstream on the Illinois side. The Rappites were a German commune - descendants of the same type of commune as the Taborites and Huttites. This passage describes activity at Harmony, Indiana. Later they moved the commune to Economy. Another communitarian, Robert Owen, bought the entire town of Harmony, Indiana.

[18]Footnote by Douglas Palaschak: "He" refers to George Rapp, the founder of the Rappites, who lived to age 90.

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