

GENETICALLY MODIFIED CROPS & BIOETHANOL FOR E10 IN NIGERIA

One of the pillars of bioethanol sustainability in both production and use is the availability of sufficient feedstock and corresponding feedstock yield per hectare of land. With the emergence of the bioethanol business opportunity around the world, ordinary land with all the fertilizer, can still not meet the bioethanol requirement (yet) globally. So what most bioethanol producers in some developed nation do is to plant and multiply GM (Genetically modified) crops to increase the crop/feedstock yield to meet the renewable fuel standards RFS. Genetic modification involves inserting one or more foreign genes, which can be derived from numerous different species, into the genome of a host organism, thereby providing it with a new characteristics or traits. In the United States, GM crops help farmers meet the growing feedstock demand for bioethanol. United States remains the largest single market for both GM crops and bioethanol.

In 2007, 73% of the corn for ethanol production was GM varieties which were herbicide tolerant and insect resistant. GM feedstock have help US farmers to increase yield by 30% over the past 10years. In the 2007 US energy bill, 36billion gallons (In 2008, US produced 9billion gallons) of US fuel ethanol supply will be produced by 2022 i.e in 7yrs time from this year 2015. Any living organism can be genetically modified, including human beings but this technique is mostly applied to crop plants in other to boost the crop yield. In plants, the foreign genes are first inserted into individual cells, often by transporting the genes within a virus or bacterium or blasting the cells with a gene gun. These plant cells are then encouraged to multiply and grow.

But there is a general belief on the negative health and environmental effects of GM crop when producing ethanol meant for food or beverage grade. The fraternity between GM crop and bioethanol in the US is banned in the whole of EU. One of the perceptions in the EU is that the foreign gene added to GM crops might escape into wild plants and food derived from crops could pose a serious health risk to the consumers. Both the environmental and consumer groups in the EU continue to assert that GM crops pose unacceptable risks. As a result, the European commission introduced a comprehensive regulatory regime for GM crops in 2003 and majority of trials of GM crops (grown by 8 EU member countries; Germany, Portugal, Spain, France, Czech Republic,

Slovakia, Romania and Poland) still have not received regulatory approval in Europe.

As we have anti biofuels, so also we have anti GM crops in Europe. In Feb, 2008 the environmental group friends of the earth published a brief relationship between GM crops and biofuels in the EU and says:

“ GM crops provides no advantage when producing agrofuels/bioethanol. GM feedstock for ethanol production raise unacceptable health and environmental concerns as well as lead to further intensification of agriculture and increase corporate control of agriculture. In addition, crops engineered with unnatural characteristics intended for bioethanol will inevitably contaminate human food supplies. Therefore, use of GM crops and trees should not be permitted in the production of agrofuels in the EU”

Despite what the Friends of the Earth claims, GM crops are accepted and welcome in many countries of the world and the leading country is the United States. More than 6 yrs ago, the EU and its member states ratified the Kyoto protocol to the United Nations framework convention on climate change, to reduce collective GHG emission by 8% by 2012. Not all the EU members are complying. In the EU, GM crops or products made from GM crops are not approved to be imported to the EU countries. The negative effect of this is that the bioethanol industry in the EU will not have competitive advantage. It will mean producing bioethanol in US, Brazil and Canada and import to the EU. This will of course consumes more energy and means European ethanol producers are building production capacity in other parts of the world and not in Europe. To meet the 10% biofuels mandate of European commission by 2020, EU must approve development and use of GM biomass, grass and cellulose in the EU but this has not happened.

In Nigeria, the reality on the ground is that there is no serious commitment on bioethanol from the government side yet in terms of well disseminated bioethanol policy and laws as done in other countries. We import petrol blended with 5% of ethanol and DPR monitors compliance but the petrol from our functioning refineries is never blended with the 10% ethanol in every liter of petrol produced or used in Nigeria. Nigeria daily consume 40million liters of petrol and if the 10% ethanol is adhered to as agreed in the Kyoto protocol, the 4million liters of ethanol is required daily. A typical 100,000LPD ethanol plant will need human labor of 205 employment or 8200(40plants of 100LPD each) employment for the from both direct and indirect

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employment . How can we be said to be committed to the Kyoto agreement on both environment and climate change? How can we be said to be serious on the clean energy technology? Zenith Agroethanol Nigeria limited believes in the exclusive use of GM crops for ethanol production and use as transportation fuel in Nigeria. Again, it is when we have biofuels laws to capture this. The movement and multiplications of GM crops should be monitored and controlled until the controversy surrounding the health implication of GM crops is resolved among the scientists, environmentalists and other stakeholders globally. Nigerian government must come up with aggressive awareness on the direction for biofuels industry and support for climate change in clear terms. Relevant departments in the Universities and the research institutes in Ibadan, Umudike and elsewhere must advise government and general public on the health implications of planting and using GM crops for ethanol production in Nigeria especially when the ethanol grades are for beverage, industrial/pharmaceutical purposes. In Nigeria, year 2008 was characterized by several unserious and over ambitious biofuels producers who did not know the requirements of this industry. They could not synergize the current infrastructures with the needs of the pseudo industry. So serious investors, in this industry must be conscious of the possible government decision on the proliferation of the GM crops in Nigeria. The old carpenter adage remains “measure severally and cut once” If you plan to export your bio-ethanol from Nigeria to the EU (your closest buyer), then think twice before using GM crops as your feedstock. All of these should be stated in the Nigerian biofuels Laws whenever they are out. Nigerian government must bring together, biofuels equipment manufacturers and suppliers, relevant government agencies (Energy commission, Agriculture, Finance, NIPC, NEPC, Environment , trade & industry, SON, NAFDAC,), farmers, trade associations, law firms, R & D companies, project developers and operators, systems providers, banks/lenders, architects construction and rigging companies etc to discuss the roles GM crops will play in our nascent bioethanol industry. The way some countries frown at Clone is the way EU is rejecting GM crops in ethanol production for health reasons. Nigeria too, must take a global decision on this. We all agree that global warming and climate change threats are real and that this could results in loss of natural resources which could include drops in rainfall, food shortages, drought, desertification and poor livestock and

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fishery yields. The solution to this is not only to put an end to gas flaring by the oil companies in Nigeria but also to establish a vibrant and formidable bioethanol industry in Nigeria. The Nigerian bioethanol industry must meet all the basic 3 sustainability criteria namely:

- a. Ethanol production must not negatively affect the land where the feedstock is grown, including animal life and water resources for the land as well as land's ability to sequester carbon-dioxide.
- b. Ethanol must not be produced in a way that negatively affects the price and availability of food items especially within the community where the factory is sited. The quality of life of those who live or work on the land must also not be impaired (i.e environment and people's well being). Feedstock availability is a precondition for bioethanol production sustainability.
- c. There must be savings in the GHG (Greenhouse gases) which must be accounted for along the entire supply chain from the feedstock field to the bioethanol pump station. Air quality test must reflect in the EIA (Ministry of environment is responsible for this) report of the ethanol producer.

There must be a certification system to monitor compliance of bioethanol producers in Nigeria to the 3 sustainability criteria above. The house of Representative committee on climate change and the proposed National climate change commission have a serious role to play in getting this done. We must show people of the world that we are responsible people and can respect Nigerian signatory to 1997 and 2000 to Kyoto protocol agreement especially now.