Preparing for genetically modified foods [gmf] debate

Food & Diet

Collection of Arguments Against Genetically Modified Food| #| Argument| Counter-Argument / Counter-Example / Aggressive Counter| 1| Technology may later be applied to humansEx. Attempts to create a super race, something which was already attempted by Nazi Germany and USSR during the time of war| Yes! We will be able to understand functionality of why things happen, we will develop cures to many diseases which won't have side-effects as the cures will be personalized – by 2014 reading one's genome is predicted to cost only $5000 and to be done only in an hour, big possibilities| 2| Health Side Effects| Ugh no.

Before hitting the market, all food undergoes thousands of tests on whether it is dangerous toxically and/or allergically. Some tests compare molecular structures other compare atomic structures between GM and non-GM food. We can, in fact, genetically modify organisms to contain more nutritious and healthier elements than they did ever before. How do I know? Because it has already been done. Golden rice example. | 3| GM Crops require harmful chemicals to grow (ex. Nitrogen) | But they instead supplement the many more harmful chemicals that would be used if they weren't genetically modified. 4| Part of an ecosystem – damages the chain of those animals that depend on the GM product| The genes of the plant itself are not the most significant part of what determines its place in the ecosystem and how it interacts with its other members. For example, the microbes living in the root system – and microbes are everywhere, there are around 10 pounds circulating your digestive tract right now, have a greater impact on the plant's metabolic processes than the plant's genetic background itself. | 5| "

Playing God” when we develop our own organisms| There is nothing unnatural in chemistry.

We don’t invent compounds or molecules or such – they are here, they are in the Universe – we organize them and move them around but we do not create anything unnatural. | 6| Unnatural| Only if you don’t know biology. All microorganisms swap genes promiscuously all the time. Not only microorganisms – look at dogs for example. | 7| Evolutionary impact on the environment: May create super bugs and super weeds / reduce biodiversity. Irreversibility of releasing crops – will mix in with others| Evolution – breeding happened for thousands of years, even cross-sectional breeding.

However it is very slow and the genes acquired may sometimes be negative ones. Genetic engineering ensures a faster process with only the stronger genes being present. Plus it allows for greater biodiversity as the genes can now be transferred from relatively distant species and even bacteria. | For Genetically Modified Food| #| Argument| Supporting Example| 1| Possibilities for food improvement (Also for animals)| Evolve disease resistance, design for higher yields and resistance to pests, increase vitamins and make healthier, expand the climate window, and produce better flavours and aromas.

Example: 40% of crops, according to scientist and futurist, Steward Brand, are lost due to weeds and pests and related problems. Drought-tolerant. Flood-tolerant. Salt-tolerant. Example: Monsanto claims its potato that is resistant to the Colorado beetle could save 2, 000 tons of pesticides, 180, 000 containers and 150, 000 gallons of fuel| 2| Genetic Engineering reduces

the huge impact of agriculture on natural systems| No pesticide use. Reduce the impact on soil. Increase yield which leaves more land to remain wild. 3| Morality of Genetically Modified Food| There is a moral imperative for making GM food ready and economically available to people in developing countries who need them. | 4| Economic Impact| Crops are much more accessible since there is no money wasted on pesticides, there are less losses do to pests, they grow quicker etc. This in return makes them accessible to more people. | 5| Organic food production will not be enough for the growing population that must be sustained (Malthusian Collapse)| By 2030, 8. 2 billion people living in the world. 6| Only a step towards other possibilities of genetic engineering| Certain microbes produce gasoline etc – we can make energy. Using chemical processes in other living organisms – we can clean up the planet. By understanding the very basis of how and why stuff happens – the functionality, we can understand many diseases on a genetic level which we can cure. Ex. Why do cancer cells become infected and start spreading? With a card identifying one's own genetic code, you go to a pharmacy and get the exact medication that is right for you – without side-effects. Debating Plan Intro If you could cure disease like cancer – would you do it? If you could eliminate hunger – would you? Create cheap energy? Clean up oceans and reduce CO2 emissions – I'm asking would you do it? No. Right now you are planning to prohibit the technology that can make it all possible – genetic engineering. For thousands of years, nature allowed for genetic modification. Species bred together, the strongest genes survived – I am not here to introduce you to the process of evolution.

Recently, humans discovered the genome and can now affect natural processes to ease our lives, to improve the world. I have listened to your arguments as to why we should give it all away – and you know what? Your logic is far from flawless. Before I critique yours – allow me to present mine. Economy * Whenever there is a controversy as such – there are different views one can take. Dominant vs. Alternative. * You talked about health, environment…let's talk about the economy for some bit. 1. Qualities of the food. GM => better food. a. Consumer qualities i.

Better flavours and aromas ii. Increasing number of vitamins and/or proteins in a given food that make it healthier. Ex: Golden rice. b. Supplier qualities iii. Grow faster, be stronger, independent of detrimental natural factors, bigger yields 1. Resistance to disease / pests. -> Less crops wasted, more available for longer storage. (40% of crops, according to scientist and futurist, Steward Brand, are lost due to weeds and pests and related problems.) 2. No pesticide use – reduce the impact on soil. Increase yield which leaves more land to remain wild. environment) 3. Expand the climate window (all season growing AND growing on more territories, increasing yield) 4. Design a certain crop to produce more yield 5. Tolerant to droughts, floods, extreme salinization 6. Not only saves the crops but also the materials. Monsanto claims its potato that is resistant to the Colorado beetle could save 2, 000 tons of pesticides, 180, 000 containers and 150, 000 gallons of fuel – save money 7. Grow quicker – more output for farmers. 8. Increased supply etc. o meet the demand. 2. Affect Canadian Industries c. Farming industry is currently in a downturn for the reason that prices for most commodities are at rock bottom. Where does GM come through this? d. " The only way I can

see of breaking the cycle is by enabling farmers to add value to their crops through genetic modification," says Dr Macfarlane Smith. " For example, by producing genetically modified malting barley which consistently malts better, it would be perfectly reasonable for the growers of that barley to expect a share of the improved efficiency. e. Farming industry jumpstarted f. Indirectly affects other industries, the whole economy g. GM wastes less money than pesticides etc. Decrease in the price of production -> increased supply -> more affordable food -> increased consumerism 3. Affect the global industry h. Trend of globalization – specialization of countries into a certain type of production (examples) i. Overpopulation (8. 2 billion in 2030 as according to the Population Reference Bureau) j. Specialization in production of food. We already have water.

But with so much possible food output, we have big opportunities on the global market if we truly embrace GM, not just let it happen a bit – as in with European countries and so on. Investing in technology etc. k. Why should we deny such big opportunities? Notes: Dragana -> sheep and such reduces biodiversity etc Cloning animals – genetic engineering. Natural order disruption. Numerous problems within nature. Same genetic makeup puts a species survival in risk. Variation is good. Black and white moths. Genetic makeup. If a man is proud of his wealth, he should not be praised until it is known how he employs it. Socrates