The lack of conventional pesticides environmental sciences essay

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Organic Farming

There are a variety of ways in which farmers choose to grow their crops. Some give higher financial benefits, while others give higher health benefits. A few methods are even environmentally friendly. Most farmers choose to farm in such a way that they get the highest possible income with the least possible work. However, this is typically a very poor decision to be made. Traditional farming is very chemical dependent, which sends pollutants into the environment due to runoff, leaching, and wind. The standard way of growing crops also puts a lot of stress on the land, reducing the value of the soil. For these reasons, a handful of farmers choose to sacrifice the superior economic benefits of traditional farming for the environmentally friendly advantages of organic farming. Organic farming is the method of growing crops in which the yield is not processed with synthetic fertilizers or sprayed down with pesticides. The idea of farming organically has been a prominent method since the early 1900’s. This practice of farming with little to no fertilization, and absolutely no pesticides, has been on the rise to dominance ever since. Small, experimental farming plots have turned into full scale agricultural industries with an excessive amount of products sold under a specialty organic seal, guaranteeing consumers proof that what they are buying is actually organic. Organic farming has come so far that some chains of stores have opened up in which they specialize solely in selling organic products. Being able to prove that a product is organically farmed is the most important aspect of this practice. Organic farming consists of numerous crucial parts that, without any one of them, the yield cannot be considered

organic. A few of the most important things to consider in organic farming are pesticides, soil care, and sustainability. Pesticides are one of the most critical tenets of proper organic farming practices. A true organic farm uses no synthetic pesticides whatsoever. However, organic farmers can still use environmentally friendly pesticides. Biopesticides are a form of pesticides that consist completely of natural materials such as animals, plants, bacteria, and certain minerals. Common examples of biopesticides that can be easily accessed are canola oil and baking soda. There are three specific categories into which the vast array of biopesticides available can be divided up. These categories are microbial, plant, and biochemical. Microbial pesticides are among the most widely used, and consist of various microorganisms, such as bacterium, fungi, or protozoan. In most cases, the active ingredient of a microbial pesticide will only be affective towards a specific pest; multiple pests may not be controlled by the same microorganism. Bacillus thuringiensis is the most popular and well known of all microbial pesticides. Plant pesticides are a type of substance in which the genetic material that works against a target pest is added to the plant itself. The third type of biopesticides are biochemical pesticides. These such pesticides are naturally occurring, and control pests in ways that are non-toxic. These types of biopesticides are polar opposites to traditional, synthetic pesticides, which directly kill or inactivate the pest. There are a variety of different compositions of biochemical pesticides. Some are comprised of sex pheromones, which interfere with mating, while others are made of scented plant extracts to lure a pest into a trap. In comparison to the conventional forms of pesticides, biopesticides are significantly less harmful to the environment. Biopesticides are also beneficial in that they

typically only affect the organism that is targeted, whereas the use of traditional pesticides have the risks of affecting a much wider spectrum of organisms, such as birds, fish, mammals, etc. Another advantage to biopesticides is that they are very effective in small amounts and typically do not take very long to degrade. Biopesticides are also a major factor in Integrated Pest Management (IPM). IPM Programs are methods used that allow farmers to efficiently evaluate the pest-based problem at hand, decide how to deal with it, and initiate a control method. In effect, IPM Programs can be used to target not just one pest, but multiple pests at the same time. IPM follows four basic steps. The first part to successfully manage a pest is to determine whether or not action must be taken in order to control a pest problem. Afterwards, close and detailed monitoring should be done as to ensure that the farmer knows exactly what the pest(s) is/are. Then, a farmer must begin control first by proper prevention. By using proper prevention, a pest can be hindered from further spreading and becoming a bigger threat. Finally, the pest must be controlled, with the most effective but least risky methods being chosen first. The only time in which broadcast spraying or non-specific pesticides should ever be used is as a last resort. The lack of conventional pesticides is a major helping factor in ensuring healthy crop yields. Soil care is another vital piece of the organic puzzle. Having healthy and nutritious soil is just as important as any other part of the practice of organic farming. If the soil is polluted because of improper use of pesticides, the plants grown there will be unable to gather a sufficient amount and variety of the nutrients they need to give a heavy yield to the grower. However, pesticides are not the only source of poor soil quality. One of the prominent reasons that soil is lacking in nutrients is due to poor plant

management. When farms become large scale industries, taking over miles of land, farmers become less conscious as to the importance of plant variety. As a result, their land is draped in monocultures. This is a poor decision because monocultures quickly suck up the nutrients that they need, leaving only the unused nutrients in the soil. Therefore, when the next crop yield is introduced, it automatically starts off with a poor intake of nutrients. Not only that, but monocultures are extremely susceptible to being wiped out by pests, because the entire yield is one species, and so the pest has easy access to its next meal. As an easy way of ensuring proper care is given to the soil, a practice called Crop Rotation is highly used. Crop Rotation is a widely known method of farming in which a series of different crops are grown in the same area in sequential seasons. This type of farming gives a large sum of benefits to the soil. A typical form of crop rotation would be planting leguminous crops that will restore the nitrogen in sequence with cereals and other crops; three predetermined crops are the most commonly seen method of Crop Rotation. As a result of crop diversity, the risk of pests and pathogens having a large effect on the yield produced is lessened. Crop Rotation also improves the fertility and soil structure because of the alternations between deep- and shallow-rooted plants. Having fertile soils is an important aspect of receiving nutrient-rich yields from organic farming. Sustainability is an important topic of organic farming as well. Sustainability, unlike the previous two, is not about gaining benefits immediately, but rather, achieving environmental advantages in the long-run. Sustainable agriculture is a type of sustainable development, in which the practice of farming meets the needs of the present without sacrificing the capabilities of further generations to meet their own needs. Despite the importance of

sustainability, few people even understand what it really means. Sustainability is an influential approach to conserving our environment. In other words, it adds new factors to a farmers everyday decisions, such as: what are the long-term effects of this decision? The biggest benefit to sustainability is that, by following it properly, a farmer can ensure that the land on which he is growing is not impacted to the point that it can no longer be used once the farmer evacuates the site. In order to do this, farmers must conserve the amount of water they use by reducing irrigation, limit the amount of pesticides, both conventional and bio-, that is used, and properly restore the land to its original, nutrient-rich state. To conclude, organic agriculture is an extremely important issue in the horticultural industry. Being able to completely comply with the basic tenets of organic farming will ensure that the environment is kept pristine and future generations will be able to live off of it just as much, if not more, than the present generation. As a side-benefit, organic farming is also a nutritionally beneficial alternative to conventional agriculture; keeping the soil rich in nutrients, and preventing the spread of pollution through pesticides ensures that the crop yield consists of maximum nutritional value. Given all of this, it is hard to understand why any farmer would choose to revert to the traditional way of farming, when organic farming gives just as much, if not more, in yield.