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http://www.ucsusa.org/food_and_agriculture/solutions/advance-sustainable-agriculture/sustainable-agriculture.html#.VZLt7xt_Oko, June 30th.

Sustainable Agriculture Techniques

5 Sustainable agriculture provides high yields without undermining the natural systems and resources that productivity depends on. Farmers who take a sustainable approach work efficiently with natural processes rather than ignoring or struggling against them – and use the best of current knowledge and technology to avoid the unintended consequences of industrial, chemical-based agriculture. One important result is that farmers are able to minimize their use of pesticides and fertilizers, thereby saving money and protecting future productivity, as well as the environment.



15 Below are some of the most common sustainable agriculture techniques employed by farmers today to achieve the key goals of weed control, pest control, disease control, erosion control and high soil quality:

- Crop Rotation
- Cover Crops
- Soil Enrichment
- Natural Pest Predators
- 20• Biointensive Integrated Pest Management

Crop Rotation

25 Crop rotation—growing different crops in succession in the same field—is one of the most powerful techniques of sustainable agriculture, and avoids the unintended consequences of putting the same plants in the same soil year after year. It is a key element of the permanent and effective solution to pest problems because many pests have preferences for specific crops, and continuous growth of the same crop guarantees them a steady food supply, so that populations increase. For example, right now European corn borers are often a significant pest in the United States because most corn is grown in continuous cultivation or in two-year rotations with soybeans. Four- or five-year rotations would control not only corn borers, but also many other corn pests as well. In fact, rotation reduces pest pressure on all the crops in the rotation by breaking the pest reproductive cycles.

30 In rotations, farmers can also plant crops, like soybeans and other legumes that replenish plant nutrients, thereby reducing the need for chemical fertilizers. For instance, corn grown in a field previously used to grow soybeans needs less added nitrogen to produce high yields.

35 Cover Crops

Many farmers also take advantage of the benefits of having plants growing in the soil at all times, rather than leaving the ground bare between cropping periods, which produces unintended problems. The planting of cover crops such as hairy vetch, clover, or oats helps farmers achieve the basic goals of:

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- preventing soil erosion,
- suppressing weeds, and
- enhancing soil quality.

45 Using appropriate cover crops is worth the extra effort because it reduces the need for chemical inputs like herbicides, insecticides, and fertilizers.

Soil Enrichment

50 Soil is arguably the single most prized element of agricultural ecosystems. Healthy soil teems with life, including many beneficial microbes and insects, but these are often killed off by the overuse of pesticides. Good soils can improve yields and produce robust crops less vulnerable to pests; abused soils often require heavy fertilizer application to produce high yields. Soil quality can be maintained and enhanced in many ways, including leaving crop residues in the field after harvest, plowing under cover crops, or adding composted plant material or animal manure.

Natural Pest Predators

55 Understanding a farm as an ecosystem rather than a factory offers exciting opportunities for effective pest control. For example, many birds, insects, and spiders are natural predators of agricultural pests. Managing farms so that they harbor populations of pest predators is a sophisticated and effective pest-control technique. One of the unfortunate consequences of intensive use of chemical pesticides is the indiscriminate killing of birds, bats, and other pest predators.

60 Biointensive Integrated Pest Management

65 One of the most promising technologies is the control of pests through integrated pest management (IPM). This approach relies to the greatest possible extent on biological rather than chemical measures, and emphasizes the prevention of pest problems with crop rotation; the reintroduction of natural, disease-fighting microbes into plants/soil, and release of beneficial organisms that prey on the pests. Once a particular pest problem is identified, responses include the use of sterile males, biocontrol agents like ladybugs. Chemical pesticides are only used as a last resort.

Clase N° 7: Sustainable Agriculture Techniques
<http://www.ucsusa.org>

A. APROXIMACIÓN AL TEXTO

1. Observa la organización general del texto
2. Lee el título y subtítulos
3. Predice el tipo textual. ¿Cuál es su función y trama?

B. I. ANALIZA LAS EXPLICACIONES Y REALIZA LAS ACTIVIDADES en pares o grupos:

4. Revisión del Tiempo Presente Simple
 - a- Marca con un círculo los verbos del Presente Simple en voz activa que encuentres en el primer párrafo (L. 4 -12) ¿Es este el tiempo verbal predominante en el párrafo?
 - b- Ahora identifica ejemplos del Presente Simple en voz pasiva en las líneas que se indican:
(L. 28-29):.....
(L. 49):.....

*Observa el uso de voz pasiva con auxiliar modal de la línea 55:
...can be maintained...: ...puede ser mantenida...*

5. Revisión de Formas – ING

Las formas –ing se transcriben al castellano de acuerdo a su función.

Por ejemplo:

*Función adjetiva: *developing countries* *paises en desarrollo**

crops growing* *cultivos que crecen

*Función sustantiva: *using fertilizers* *el uso de fertilizantes**

*Función verbal: (tiempos continuados) *to be+ing:* *is producing* *está produciendo**

*Función adverbial: *by producing* *al producir / produciendo**

*Luego de una preposición: *without watering* *sin regar**

a- Transcribe al castellano las siguientes construcciones con *-ing*:

without undermining (L.4):.....

rather than ignoring or struggling (L.7):.....

saving money (L.11):.....

growing different crops (L.23):.....

b- Ahora identifica las construcciones con *-ing* en las líneas que se indican y transcríbelas al castellano:

(L. 24):.....

(L. 36):.....

(L. 38):.....

(L. 45):.....

6. Observa algunas expresiones que suelen causar dificultad en la lectura:

chemical-based agriculture (L. 9) agricultura basada en químicos

two-year rotation (L. 29): rotación de dos años

(Farmers) are able to + inf. 1(L.10) :(*can*) Los agricultores pueden.....

as well as (L.11-12): además de, como así también, así como

so that (L. 27): de manera que, para

not only.....but (also)...(L. 30): no solo.....sino (también)

7. ¿A qué se refieren las siguientes palabras?

who (L. 6) :.....

them (L. 7):.....

their (L. 10):.....

them (L. 27):.....

B.II: ACTIVIDADES PARA REALIZAR EN PARES, GRUPOS O DE FORMA INDIVIDUAL

Responde de acuerdo a la información del texto

1. En pares o pequeños grupos:

- a- Lee el primer párrafo. ¿Cuál de estos grupos de palabras se corresponde con el concepto de agricultura sustentable?
 - a1. ignorar el medioambiente – debilitar la naturaleza – químicos
 - a2. incrementar de fertilizantes – bajo rendimiento – consecuencias destructivas
 - a3. procesos naturales - alto rendimiento – proteger la productividad
- b- ¿Cuáles son los objetivos clave que los granjeros desean alcanzar por los que emplean algunas de las técnicas más comunes de agricultura sustentable?
- c- Completa el siguiente cuadro para sintetizar las características de los tres primeros tipos de técnicas de agricultura sustentable que describe el texto (L. 21-53):

Tipo de técnica	Consiste en...	Es una solución para...

2- Para realizar de forma individual:

2a –Transcribe al castellano la cuarta y quinta técnica de agricultura sustentable que presenta el texto

Recuerda que puedes buscar expresiones específicas al área de conocimiento correspondiente en diccionarios de la web sugeridos para el cursado. NO uses traductor.