

Impacts Case Study - Hawaii
(comparison of effect of benchmark and treatment)

Conservation Effects Worksheet

Truck Crop - Cabbage
(land use and crop)

Resource Setting: Maui, Hawaii

Soils - Keahua series - fine kaolinitic isohyperthermic Torroxic Haplustolls, 3-25% slope, 73°F mean temperature, clobbly structure, well drained, medium runoff, moderate permeability, 60+in. deep

Elevation - 600-1500 ft. 3.

Rainfall - 20 in.

Wind - high velocity area.

Average Air Temperature - 80°F

Growing Season - continual

Irrigation Availability - 5/8-2 in.

Natural Vegetation - buffelgrass, feather fingergrass, ilima, kiawe, lantana, pitted beardgrass, redleg grass, uhaloa, hale koa.

Air - minimal cane fire and volcanic emission pollution.

Animals - deer, chukars, pheasant, dove, francolin.

Conservation Treatment:

Land Preparation:

- Land Smoothing (466)
- Chiseling and Subsoiling (324)
- Contour Farming (330)
- Terraces (600)
- Stripcropping (586)
- Diversion (362)
- Grassed Waterway (412)
- Critical Area Planting (342)
- Field Windbreak (392)
- Hedgerow Planting (422)
- Filter Strip (393)

Field Border (386)

Crop Management:

- Irrigation Storage Reservoir (436)
- Irrigation Water Conveyance (430)
- Irrigation Water Management (449)
- Irrigation System (441 & 442)
- Nutrient Management (MLR-ALL)
- Pest Management (MLR-ALL) Post Harvest:
- Conservation Cropping Sequence (328)
- Cover and Green Manure Crop (340)
- Mulching (484)

Resource Problems Before Treatment:

- | | |
|--|-------------------------|
| Soil erosion and surface runoff | Weed and insect control |
| Insufficient irrigation and nutrient application | Low yield |
| | Labor |

IMPACTS	DECISIONMAKERS EVALUATION	
	(+ / -)	Comment
Land Smoothing (466)		
- Conservation plan provides long range program for action.	+	Meets county requirements.
- Controlled soil movement.	-	Requires bulldozing for expensive one time operation.
- Flat, friable fields	+	Farming is easier on level ground.
- Rocks piled/removed		
Chiseling and Subsoiling (324)	+ / -	Requires tractor/machinery and fuel but not necessary.
- Adequate room for root growth.	-	Can not do if soil is to wet
- No water logged roots		
Contour Farming (330)	-	SCS help needed to install.
- Reduces soil erosion rates to below T (5 tons/acre).	+ / -	Results in short rows, non-farmeable areas.
Terraces (600)	-	SCS help heeded to install.
- Reduces soil erosion rate below T (5 tons/acre).	+ / -	Must clear outlets and regrade periodically.
- Channels runoff from field.	-	Requires special equipment. Results in non-farmeable areas.
Stripcropping (586)		
- Reduces soil erosion rate below T (5 tons/acre)	+ / -	SCS help needed to install. Different crops require different management.
Diversion (362)	-	
Diverts runoff from field	+/-	SCS help needed to install. Must clean outlet and regrade periodically. Requires special equipment. Results in non-farmeable areas.
	-	
	-	
Grassed Waterway (412)	-	SCS help needed to install.
Slows and channels runoff	-	Requires special machinery
Provides wildlife habitat	+	Helps preserve environment.
Filters pesticides	+	Place to eat and relax.
Aesthetically pleasing.	+	Results in non-farmeable area

IMPACTS	DECISIONMAKERS EVALUATION	
	(+ / -)	Comment
<p>Critical Area Planting (342) Reduces weeds and pests. Plants slow water velocity. Aesthetically pleasing</p>	+/- + + +	<p>May require irrigation = added expense</p> <p>Unightly weeds replaced.</p>
<p>Field Windbreak (392) and Hedgerow Planting (422) Reduces wind erosion and plant damage Reduces evapotranspiration. Provides privacy.</p>	+/- + +	<p>May require irrigation = added expense</p> <p>Plants stand up straight. Reduces irrigation cost.</p>
<p>Filter Strip (393) Water quality maintained Provides wildlife habitat</p>	+ +	<p>Clean streams, gullies, and pond</p> <p>A sportsman/naturalists' dream</p>
<p>Field Border (386) Reduces weed and insect populations Provides wildlife habitat</p>	+ - +	<p>A component of IPM program</p> <p>May require irrigation</p>
Crop Management		
<p>Irrigation Storage Reservoir (436) Water Conveyance (430) Irrigation Water Management (449) Irrigation Systems (441 & 442) Manages irrigation water effectively.</p>	+/- + -	<p>More efficient systems are costly and must pay off - cost of water rising so are economically viable.</p> <p>May need professionals to install.</p>
<p>Nutrient Management (590) Apply based on yearly soil and tissue analysis for each field. Applies correct amount of nutrients at the proper time Application of lime may increase fertilizer efficiency Water quality maintained</p>	- - + +	<p>Humbug to collect samples and keep records</p> <p>Calculating fertilizer applications is difficult</p> <p>Fertilizer yield per cost maximized</p> <p>Satisfies environmentalist.</p>

IMPACTS	DECISIONMAKERS EVALUATION	
	(+ / -)	Comment
Pest Management (595) Pests managed with cost effective means. Non-chemical controls used before chemicals. Minimal drift.	- - - - -	Pesticide misuse possible. Addresses water quality concerns. Limited IMP information. Difficult to understand labels and apply. Available pesticides change frequently. Record keeping is humbug.
Post Harvest		
Conservation Cropping Sequence (328) Soil fertility, structure and water holding capacity enhanced Soil erosion is <5 tons/acre.	- +	Must adhere to tight schedule (rains may throw off) Land is not producing cash crop = no income
Cover and Green Manure Crop (340)		
Soil erosion is <5 tons/acre Organic matter is added to soil. - Filters movement of sediment pathogens, and pesticides Mulching (484) Same as cover crop above	+ - - -	Fertilizer cost reduced in long run May require inputs in the short run May harbor insect pests. Requires machinery and fuel.
Comments: Lack of research data and variability among farms and farming practices prohibits giving exact impact. ASCS cost sharing available for many practices.		