



AgEcon SEARCH

RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

No endorsement of AgEcon Search or its fundraising activities by the author(s) of the following work or their employer(s) is intended or implied.

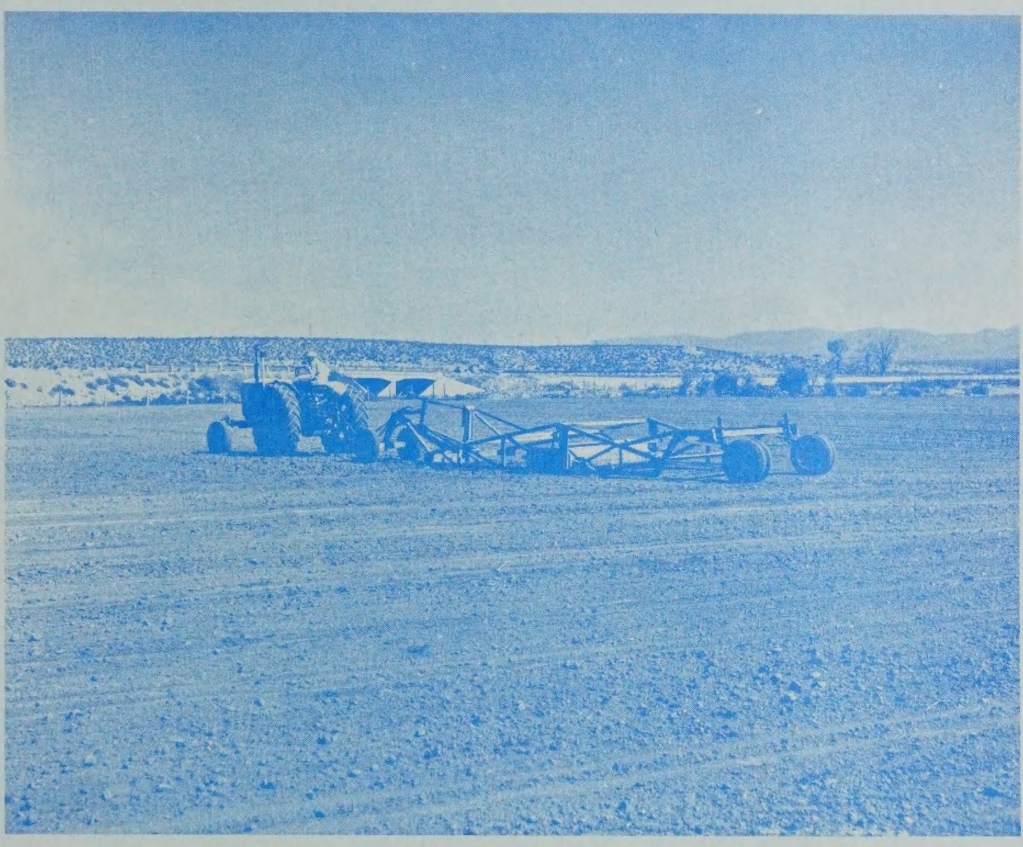
Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.

aHD1695
.S4U5
v.9

APPENDIX X

LABOR AND MACHINERY INPUTS AND
PRACTICES, AND IRRIGATION WATER USE
AND PRACTICES FOR CROP PRODUCTION
SEVIER RIVER BASIN, UTAH



United States Department of Agriculture
Economic Research Service • Forest Service • Soil Conservation Service

January 1969

AD-33 Bookplate
(1-68)

NATIONAL

**A
G
R
I
C
U
L
T
U
R
A
L**



LIBRARY

TABLE OF CONTENTS

PAGE

LABOR AND MACHINERY INPUTS AND PRACTICES, AND IRRIGATION
WATER USE AND PRACTICES FOR CROP PRODUCTION
SEVIER RIVER BASIN, UTAH

United States Department of Agriculture
Economic Research Service
Forest Service
Soil Conservation Service

Salt Lake City, Utah

First Printing, December 1965
Second Printing, January 1969

U. S. DEPT. OF AGRICULTURE
NATIONAL AGRICULTURAL LIBRARY

FEB 16 1977

CATALOGING - PREP.

TABLE OF CONTENTS

	<u>Page</u>
INTRODUCTION	1
SEVIER RIVER BASIN	5
Alfalfa	5
Barley	6
Corn for silage	7
Wheat	8
ECONOMIC AREA I	10
Alfalfa	10
Labor and machine requirements	10
Irrigation practices	11
Barley	12
Labor and machine requirements	12
Irrigation practices	13
ECONOMIC AREA II	13
Alfalfa	14
Labor and machine requirements	14
Irrigation practices	15
Barley	15
Labor and machine requirements	15
Irrigation practices	16
Corn for silage	17
Labor and machine requirements	17
Irrigation practices	17
Wheat	18
Labor and machine requirements	18
Irrigation practices	19
Sugar beets	19
Labor and machine requirements	19
Irrigation practices	19
ECONOMIC AREA III	21
Alfalfa	21
Labor and machine requirements	21
Irrigation practices	22
Barley	23
Labor and machine requirements	23
Irrigation practices	24
Corn for silage	24
Labor and machine requirements	24
Irrigation practices	24
Wheat	25
Labor and machine requirements	25
Irrigation practices	26

ECONOMIC AREA IV 27

- Alfalfa for hay 27
 - Labor and machine requirements 27
 - Irrigation practices 28
- Alfalfa for hay and seed production 29
 - Labor and machine requirements 29
 - Irrigation practices 29
- Alfalfa for seed 31
 - Labor and machine requirements 31
 - Irrigation practices 31
- Barley 32
 - Labor and machine requirements 32
 - Irrigation practices 32
- Corn for silage 33
 - Labor and machine requirements 33
 - Irrigation practices 33
- Wheat 34
 - Labor and machine requirements 34
 - Irrigation practices 35

LABOR AND MACHINERY INPUTS AND PRACTICES, AND IRRIGATION
WATER USE AND PRACTICES FOR CROP PRODUCTION,
SEVIER RIVER BASIN, UTAH

by
David L. Wilson
Agricultural Economist 1/

INTRODUCTION

In 1960, the U. S. Department of Agriculture and the State of Utah began a cooperative study to examine the problems of land and water resource use and possibilities for development in the Sevier River Basin. Authority for the work is found in Section 6, Public Law 566, as amended. Three services (Soil Conservation Service, Economic Research Service, and Forest Service) within the Department of Agriculture have participated actively in the study. Coordination between Federal and State agencies is provided by the Utah State Engineer.

This report is a subsidiary to an economic analysis of the Sevier River Basin. This material was prepared to make available detailed information on labor, machine, and irrigation inputs that were not included in a report on the "Agricultural Economy of the Sevier River Basin." Data are for the crop year 1962.

As a basis for sampling, the Sevier River Basin was divided into four "economic areas," 2/ to account for differences in climate and agricultural conditions. A list of all farm operators in each economic area was compiled. Farms were classified into broad types based on the major crop or livestock enterprises. Table 1 gives the number and classification of farms by economic area. Farms listed as other included institutional farms, farms in the soil bank, idle farms, and farms on which data were not available. These farms were not included in the survey population.

The population from which a sample was surveyed included 2,821 of the 3,052 farmers in the basin. The number of farmers interviewed by type of farm and economic area are shown in table 2. The farm survey included 55 farmers in area I, 103 in area II, 92 in area III, and 67 in area IV, for a basin total of 317 farm operators. These figures represent a 13.1 percent sample in area I, 9.7 percent in area II, 11.1 percent in area III, and 8.4 percent in area IV, for an over-all sample of 10.4 percent of the farmers in the basin.

1/ Natural Resource Economics Division, Economic Research Service, United States Department of Agriculture.

2/ Economic area is defined as an area which generally reflects similar climate, crop adaptations, productivity, and production costs.

Table 1.- Classification of farms by farm type and economic area,
Sevier River Basin, 1962

Farm type	Economic area				Basin
	I	II	III	IV	total
	Number	Number	Number	Number	Number
Beef	157	155	88	89	489
Sheep	9	20	94	12	135
Dairy	20	88	69	12	189
General	54	266	173	411	904
Small farms <u>1/</u>	165	476	350	113	1,104
Other	15	62	55	99	231
Total	420	1,067	829	736	3,052

1/ Farms with less than 40 acres of irrigated cropland.

Compiled with help of office managers, Agricultural Stabilization and Conservation Service, County Agents, and other agricultural technicians familiar with farmers and their farming operations.

Table 2.- Farmers interviewed by type of farm and economic area,
Sevier River Basin, 1962

Farm type	Economic area				Basin
	I	II	III	IV	total
	Number	Number	Number	Number	Number
Beef	17	22	19	13	71
Sheep	6	8	18	3	35
Dairy	12	27	19	8	66
General	13	38	21	33	105
Small farms	7	8	15	10	40
Total	55	103	92	67	317

Detailed information was obtained from each farmer on particular crops and fields as well as for the total farm operation. Physical data relating to irrigation water application and crop production response were also collected. Data for specified fields are summarized for the main crops in the area and presented in this report. Data are presented on labor and machine inputs and practices, along with data on irrigation water use and practices. Irrigation water use and practices were separated because in many cases farmers were unable to accurately assess the quantity of water used. No attempt is made to interpret the data or to relate the data to factors such as soils or total water supply.

Economic subdivisions of the basin are shown in figure 1. Economic area I includes all the basin area in Garfield and Piute Counties plus the Koosharem area of Sevier County. Agriculture in this area is oriented toward forage crops and livestock production. A small amount of potatoes are grown. The elevation is relatively high with valleys above 6,000 feet. The growing season is consequently short. Farmers depend primarily on direct flow water rights in the Sevier River and its tributaries to provide irrigation water supplies.

Economic area II includes the west part of Sevier County and the Gunnison area of Sanpete County. The economy of this area is dependent primarily on raising and feeding livestock with some cash crops. Sugar beets are the principal cash crop. Irrigation water supplies for this area come from Sevier River, its tributaries and reservoir storage. A limited amount of ground water is pumped.

Economic area III includes all of Sanpete County in the Sevier River Basin except for the Gunnison area. The economy of this area is dependent on forage crops and livestock. The primary source of irrigation water is from mountain streams and springs. Some water is pumped from underground supplies.

Economic area IV includes the parts of Millard and Juab Counties that are in the Sevier River Basin. The economy of this area is oriented toward raising and feeding livestock and cash-crop farming. Farm income from these two sources are about equal. Alfalfa hay, alfalfa seed, and wheat are the principal cash crops. Most of the irrigation water comes from reservoir storage and underground supplies.



Fig. 1

SCALE IN MILES
4 0 4 8 12

COUNTIES AND ECONOMIC AREAS
SEVIER RIVER BASIN
UTAH
MARCH 1965

SEVIER RIVER BASIN

The labor and machine hours required to produce and harvest different crops in the Sevier River Basin are shown in table 3. Figures indicate the weighted average man and machine hours expended by farmers. Observations were weighted by the number of acres in each field.

Only normal field repairs are included in man hours. In cases where work was custom hired and data were not available, figures are shown without acreage on which work was custom hired. Hauling and spreading manure was charged to the crop to which it was applied.

Crops that are not grown in two or more economic areas are not shown in basin totals. Figures for these crops can be obtained from the appropriate economic area section.

Table 3.- Labor and machine hours used per acre to produce and harvest different crops, Sevier River Basin, 1962

Crop	: Preharvest		: Irrigating :		: Harvest		: Total crops	
	: Man	: Machine	: Man	: Man	: Machine	: Man	: Machine	
----- Hours -----								
Alfalfa	1.0	.8	4.0	6.6	4.5	11.6	5.3	
Barley	4.3	4.1	3.5	1.3	1.3	9.1	5.4	
Corn silage	5.2	5.2	3.9	3.7	3.2	12.8	8.4	
Wheat	3.1	3.0	2.9	1.4	1.4	7.4	4.4	

Alfalfa

Data were obtained for 264 fields of alfalfa covering 4,133 acres in the basin (table 4). Fields averaged 15.7 acres in size. The average yield of alfalfa was 3.2 tons per acre for 2.3 cuttings. The first cutting yielded 1.7 tons per acre; second cutting 1.3 tons per acre; and the third cutting .9 ton per acre. Except for economic area I, the number of cuttings depended upon the amount of water available. A large majority of the hay in the basin is baled for handling and storage.

Dryland alfalfa accounted for 14 acres of the 4,133 total acres. The remaining 4,119 acres were irrigated an average of 4.2 times and 2.7 acre-feet of water were applied per acre. Irrigation streams averaged 3.6 cfs in size. The typical irrigated field contained 14.2 acres and had 6.8 settings with irrigating time of 4.4 hours per setting. Irrigation runs averaged 251 yards in length and varied from 30 to 600 yards in length. Commercial fertilizer was used on 908 acres (21 percent) and manure applied to 488 acres (11 percent). Insects were controlled by spraying on 2,864 acres or 67 percent of the land.

Table 4.- Labor and machine requirements per acre, and machinery used to produce and harvest alfalfa hay, Sevier River Basin, 1962

Operation	: Range in size : : of equipment	:	: Times over	: Area covered	: Time per once over	
					Man	Machine
			Number	Acres	Hours	Hours
Fertilizing	8'-14'		1.0	908	.4	.3
Manuring	50-150 bu.		1.0	488	3.5	2.9
Ditching	Tractor ditcher		1.8	2,227	.3	.2
Renovating	12'		1.0	15	.8	.8
Spraying	8'-60'		1.4	2,864	.2	.2
Irrigating:						
First				4,119	1.1	
Second				3,795	1.1	
Third				3,078	1.1	
Fourth				2,089	1.1	
Fifth				1,265	1.0	
Sixth				811	1.0	
Seventh				415	1.1	
Eighth				190	1.1	
Mowing	5'-7'		2.3	3,274	.5	.5
Raking	6'-12'		2.3	3,274	.4	.4
Windrowing	12'		2.4	859	.3	.3
Baling			2.3	3,874	.6	.6
Hauling and stacking:						
First			1.0	4,133	2.0	.8
Second			1.0	3,901	1.7	.7
Third			1.0	1,582	1.2	.4
Chopping			2.7	182	1.5	1.2

Barley

Data were collected for 189 fields of barley covering 1,859 acres within the basin (table 5). Fields averaged 9.8 acres in size. The average yield of barley was 61.8 bushels per acre. Nearly all grain was harvested by combine.

Farmers irrigated an average of 3.3 times and applied a total of 2.0 acre-feet of water per acre. Irrigation streams averaged 3.5 cfs in size. The typical irrigated field contained 10.5 acres and had 4.4 settings with irrigating time of 4.8 hours per setting. Irrigation runs averaged 250 yards in length and varied from 40 to 600 yards in length. Commercial fertilizer was put on 332 acres (18 percent) and manure applied to 489 acres (26 percent). Weeds were controlled by spraying on 516 acres or 28 percent of the land.

Table 5.- Labor and machine requirements per acre, and machinery used to produce and harvest barley, Sevier River Basin, 1962

Operation	: Range in size : : of equipment	: Times over	: Area covered	: Time per once over	
				Man Hours	Machine Hours
Fertilizing	7'-12'	1.0	332	.4	.3
Manuring	40-120 bu.	1.0	489	2.8	2.5
Plowing	2/12-4/18	1.0	1,714	1.3	1.3
Disking	4'-10'	1.3	301	.6	.6
Harrowing	5'-24'	1.5	1,472	.4	.4
Floating	6'-20'	1.3	1,179	.5	.5
Drilling	6'-24'	1.0	1,859	.5	.5
Corrugating	2-4 row	1.0	1,324	.5	.5
Ditching	Tractor ditcher	1.8	1,146	.3	.2
Spraying	8'-40'	1.0	516	.4	.3
Irrigating:					
First			1,832	1.3	
Second			1,740	1.1	
Third			1,352	.9	
Fourth			721	.9	
Fifth			232	.8	
Sixth			162	.9	
Combining	5'-15'	1.0	1,852	.8	.8
Hauling		1.0	1,761	.5	.5

Corn for Silage

Data were collected for 59 fields of corn covering 539 acres within the basin (table 6). Fields averaged 9.1 acres in size. The average yield of corn for silage was 15.9 tons per acre.

Farmers irrigated an average of 4.3 times and applied a total of 2.1 acre-feet of water per acre. Irrigation streams averaged 3.4 cfs in size. The typical irrigated field contained 9.8 acres and had 4.5 settings with irrigating time of 3.8 hours per setting. Irrigation runs averaged 219 yards and varied from 83 yards to 440 yards in length. Commercial fertilizer was put on 184 acres (34 percent) and manure applied to 297 acres (55 percent). Weeds were sprayed on 365 acres or 68 percent of the land.

Table 6.- Labor and machine requirements per acre, and machinery used to produce and harvest corn for silage, Sevier River Basin, 1962

Operation	: Range in size : : of equipment	: Times over : <u>Number</u>	: Area covered : <u>Acres</u>	: Time per once over	
				<u>Man</u> Hours	<u>Machine</u> Hours
Fertilizing	7'-12'	1.0	184	.3	.3
Manuring	60-140 bu.	1.0	297	2.5	2.5
Plowing	2/12-2/18	1.0	529	1.1	1.1
Harrowing	2-5 sec.	1.6	485	.4	.4
Floating	6'-16'	1.8	232	.4	.4
Drilling	2-4 row	1.0	539	.6	.6
Cultivating	2-4 row	1.9	248	.9	.9
Ditching	Tractor ditcher	1.8	296	.2	.2
Spraying	6'-40'	1.0	365	.3	.3
Irrigating:					
First			539	1.1	
Second			524	.9	
Third			496	.9	
Fourth			386	.8	
Fifth			227	.7	
Sixth			129	.6	
Seventh			57	.5	
Eighth			20	.8	
Harvesting	1 row	1.0	534	3.7	3.2

Wheat

Data were obtained on 19 fields of wheat covering 179 acres within the basin (table 7). Fields averaged 9.4 acres in size. The average yield of wheat was 42.5 bushels per acre.

Of the 179 total acres, 62 acres were dryland and 117 irrigated. Farmers irrigated an average of 3.0 times and applied a total of 2.4 acre-feet of water per acre on irrigated wheat lands. Irrigation streams averaged 3.4 cfs in size. The typical irrigated field contained 8.3 acres and had 5.2 settings with irrigating time of 4.3 hours per setting. Irrigation runs averaged 240 yards in length and varied from 40 to 600 yards in length. Commercial fertilizer was put on 5 acres (3 percent) and manure applied to 32 acres (18 percent). Weeds were controlled by spraying on 39 acres or 22 percent of the land.

Table 7.- Labor and machine requirements per acre, and machinery used to produce and harvest wheat, Sevier River Basin, 1962

Operation	: Range in size : : of equipment	: Times over	: Area covered	: Time per once over	
				Man Hours	Machine Hours
		<u>Number</u>	<u>Acres</u>		
Fertilizing	12'	1.0	5	.6	.6
Manuring	40-80 bu.	1.0	26	NA 1/	NA 1/
Plowing	2/12-4/24	1.0	154	1.3	1.3
Disking	7'-8'	1.1	27	.8	.8
Harrowing	1-4 sec.	1.4	164	.4	.4
Floating	6'-12'	1.4	99	.5	.5
Drilling	12-16 drop	1.0	179	.5	.5
Corrugating	2-6 row	1.0	91	.5	.5
Ditching	Tractor ditcher	1.5	71	.2	.1
Spraying	20'-40'	1.0	39	.2	.2
Irrigating:					
First			120	1.6	
Second			114	1.4	
Third			73	1.5	
Fourth			29	1.2	
Fifth			6	2.8	
Sixth			6	2.8	
Combining	9'-14'	1.0	179	.9	.9
Hauling		1.0	179	.5	.5

1/ Man hours for applying manure were not available.

ECONOMIC AREA I

The labor and machinery hours required to produce and harvest different crops in economic area I are shown in table 8. Figures indicate the weighted average man and machine hours expended by farmers. In some instances data are incomplete; these cases have been footnoted with appropriate explanations.

Only normal field repairs are included in man hours. In cases where work was custom hired and data were not available, figures are shown without acreage on which work was custom hired. Hauling and spreading manure was charged to the crop to which it was applied.

Table 8.- Labor and machine hours used to produce and harvest different crops, economic area I, Sevier River Basin, 1962

Crop	: Preharvest		: Irrigating		: Harvest		: Total crops	
	: Man	: Machine	: Man	: Machine	: Man	: Machine	: Man	: Machine
	----- Hours -----							
Alfalfa	.4	.4	4.0		6.5	4.6	10.9	5.0
Meadow	.1	.1	1.0		3.0	1.9	4.1	2.0
Barley	<u>1/4.9</u>	<u>1/4.8</u>	5.1		1.5	1.5	<u>1/11.5</u>	<u>1/6.3</u>

1/ Hours do not include time for labor and machine hired to spray 57 acres.

Alfalfa

Labor and machine requirements.-- Data were collected for 49 fields of alfalfa covering 973 acres in economic area I (table 9). Fields averaged 19.9 acres in size. The average yield of alfalfa was 2.4 tons per acre for 1.9 cuttings. The first crop averaged 1.4 tons per acre and the second crop 1.1 tons per acre. Two cuttings is the normal practice in this area. Nearly all of the alfalfa hay was baled for handling and storage. Commercial fertilizer was applied to 101 acres (10 percent) and 94 acres (9 percent) were manured. Insects were controlled by spraying on 388 acres or 37 percent of the land.

Table 9.- Labor and machine requirements per acre, and machinery used to produce and harvest alfalfa hay, economic area I, Sevier River Basin, 1962

Operation	: Range in size : : of equipment :	: Times over : <u>Number</u>	: Area covered : <u>Acres</u>	:Time per once over	
				<u>Man</u> Hours	<u>Machine</u> Hours
Fertilizing	8'-14'	1.0	101	.3	.3
Manuring	60-80 bu.	1.0	94	3.1	2.8
Ditching	Tractor ditcher	1.6	237	.2	.2
Spraying	10'-30'	1.0	388	.2	.2
Irrigating:					
First			973	1.0	
Second			953	.9	
Third			867	.9	
Fourth			650	.9	
Fifth			448	.8	
Sixth			313	.8	
Seventh			165	.8	
Eighth			75	.7	
Mowing	5'-7'	1.9	768	.5	.5
Raking	7'-10'	1.9	768	.5	.5
Windrowing	12'	1.9	205	.3	.3
Baling	Int. 45	1.9	942	.7	.7
Hauling and stacking:					
First		1.0	973	1.8	.8
Second		1.0	899	1.7	.7
Chopping		1.0	8	2.4	2.3

Irrigation practices.-- Complete irrigation data were available for 37 fields containing 672 acres. Fields averaged 18.2 acres in size. The average yield of alfalfa was 2.8 tons per acre. Farmers irrigated an average of 5.1 times for the season and applied a total of 3.2 acre-feet of water per acre. Irrigation streams averaged 4.3 cfs in size. The typical field had 7.9 settings and water was applied for 4.9 hours during each setting. Irrigation runs averaged 342 yards, but varied from 30 to 600 yards in length. Flood irrigating was the most common method of applying irrigation water.

Table 10.-Median dates for irrigating alfalfa by number of irrigations, economic area I, Sevier River Basin, 1962

Irrigations	2	3	4	5	6	7	8
	----- <u>Dates</u> -----						
First	5/15	5/20	6/1	4/1	4/10	4/15	4/15
Second	6/1	6/20	6/20	5/1	5/15	5/3	5/5
Third		7/16	7/13	6/3	6/1	5/23	5/27
Fourth			8/6	7/1	7/1	6/9	6/8
Fifth				7/20	8/1	6/2	6/20
Sixth					8/25	7/15	7/2
Seventh						8/4	7/15
Eighth							8/11

Barley

Labor and machine requirements.-- Data were collected for 23 fields of barley covering 252 acres in economic area I (table 11). Fields averaged 11 acres in size. The average yield of barley was 48.4 bushel per acre. The entire acreage was harvested by combine. Commercial fertilizer was applied to 60 acres (24 percent) and 80 acres (30 percent) were manured. Weeds were sprayed on 57 acres or 23 percent of the land.

Table 11.-Labor and machine requirements per acre, and machinery used to produce and harvest barley, economic area I, Sevier River Basin, 1962

Operation	: Range in size : : of equipment	: Times over	: Area covered : <u>Acres</u>	: Time per once over	
				<u>Man</u> Hours	<u>Machine</u> Hours
Fertilizing	Hired	1.0	60	.4	.4
Manuring	60-90 bu.	1.0	89	3.4	3.4
Plowing	14"	1.0	232	1.3	1.3
Disking	4'-9'	1.5	55	.9	.9
Harrowing	6'-10'	1.3	192	.5	.5
Floating	6'-10'	1.1	104	.7	.7
Drilling	6'-12'	1.0	252	.6	.5
Corrugating	3 row	1.0	187	.5	.5
Ditching	Tractor ditcher	1.1	73	.7	.6
Spraying	Hired	1.0	57	NA 1/	NA 1/
Irrigating:					
First			252	1.4	
Second			252	1.3	
Third			222	1.1	
Fourth			180	1.0	
Fifth			118	1.0	
Sixth			84	1.0	
Combining	Hired	1.0	252	.9	.9
Hauling		1.0	200	.9	.9

1/ Spraying was custom hired and man and machine hours were not available. Check custom hire rates for costs.

Irrigation practices.-- Complete irrigation data were available for 14 fields containing 185 acres. Fields averaged 13.2 acres in size. The average yield of barley was 46 bushels per acre. Farmers irrigated an average of 4.2 times and applied a total of 2.4 acre-feet of water per acre. Irrigation streams averaged 4.1 cfs in size. The typical field had 5.3 settings and water was applied for 4.1 hours during each setting. Irrigation runs averaged 321 yards in length and varied from 49 to 350 yards in length. Flood irrigation with corrugations was the common method used to apply irrigation water.

Table 12.- Median dates for irrigating barley by number of irrigations, economic area I, Sevier River Basin, 1962

Irrigations	2	3	4	5	6
	<u>Dates</u>				
First	6/10	5/22	4/30	4/1	4/22
Second	7/24	6/24	5/30	5/15	5/14
Third		7/14	6/28	6/10	6/1
Fourth			7/20	7/1	6/23
Fifth				7/27	7/20
Sixth					8/5

ECONOMIC AREA II

The labor and machinery hours required to produce and harvest different crops in economic area II are shown in table 13. Figures indicate the weighted average man and machine hours expended by farmers. In some instances data are incomplete; these cases have been footnoted with appropriate explanations.

Only normal field repairs are included in man hours. In cases where work was custom hired and data were not available, figures are shown without acreage on which work was custom hired. Hauling and spreading manure was charged to the crop to which it was applied.

Table 13.- Labor and machine hours used per acre to produce and harvest different crops, economic area II, Sevier River Basin, 1962

Crop	Preharvest		Irrigating		Harvest		Total crop	
	Man	Machine	Man	Machine	Man	Machine	Man	Machine
<u>Hours</u>								
Alfalfa	.9	.9	4.6		8.7	5.7	14.2	6.6
Barley	4.6	4.6	3.9		1.3	1.3	9.8	5.9
Corn silage	5.7	5.7	4.2		3.9	3.5	13.8	9.2
Wheat	<u>1/3.8</u>	3.4	5.3		1.1	1.1	<u>1/10.2</u>	<u>1/4.5</u>
Sugar beets	<u>2/7.5</u>	<u>2/7.5</u>	8.7		Hired <u>2/</u>	Hired <u>2/</u>	<u>2/16.2</u>	<u>2/7.5</u>

1/ Does not include time for spreading manure on 20 acres.

2/ Thinning, hoeing and harvesting times are not included because they were hired and time was not available.

Alfalfa

Labor and machine requirements.-- Data were collected for 99 fields of alfalfa covering 1,209 acres in economic area II (table 14). Fields averaged 12.2 acres in size. The average yield of alfalfa was 4.1 tons per acre for an average of 2.9 cuttings. The first crop yielded 2.0 tons per acre, second crop 1.5 tons per acre, and the third crop .9 ton per acre. Three cuttings is the general practice in this area. The majority of the alfalfa hay is baled for handling and storage. Commercial fertilizer was applied to 420 acres (34 percent) and manure to 113 acres (9 percent). Insects were controlled by spraying on 892 acres or 73 percent of the land.

Table 14.- Labor and machine requirements per acre, and machinery used to produce and harvest alfalfa hay, economic area II, Sevier River Basin, 1962

Operation	: Range in size: : of equipment	: Times over	: Area covered	:Time per once over	
				Man Hours	Machine Hours
		<u>Number</u>	<u>Acres</u>		
Fertilizing	8'-12'	1.0	420	.4	.3
Manuring	75-150 bu.	1.0	113	2.5	2.5
Ditching	Tractor ditcher	1.9	983	.2	.2
Renovating	2 section	1.0	15	.8	.8
Spraying	12'-40'	1.0	892	.3	.3
Irrigating:					
First			1,209	1.1	
Second			1,191	1.1	
Third			1,100	1.1	
Fourth			856	1.1	
Fifth			437	1.1	
Sixth			294	1.1	
Seventh			93	1.1	
Eighth			17	1.0	
Mowing	6'-7'	2.9	802	.5	.5
Raking	7'-10'	2.9	802	.4	.4
Windrowing	12'	2.9	407	.3	.3
Baling		2.9	1,084	.7	.7
Hauling and stacking:					
First		1.0	1,209	2.1	.8
Second		1.0	1,194	1.8	.7
Third		1.0	1,091	1.2	.5
Chopping		2.8	102	1.8	1.4

Irrigation practices.-- Complete irrigation data were collected for 81 fields containing 922 acres. Fields averaged 11.4 acres in size. The average yield of alfalfa was 4.5 tons per acre. The crop was irrigated an average of 4.4 times during the growing season and a total of 2.7 acre-feet of water applied per acre. Irrigation streams averaged 3.4 cfs in size. The typical field had 5 settings and water was applied for 4.9 hours during each setting. Irrigation runs averaged 219 yards in length, but varied from 32 to 600 yards in length. Flood irrigating with corrugations was the most common method of applying irrigation water.

Table 15.- Median dates for irrigating alfalfa by number of irrigations, economic area II, Sevier River Basin, 1962

Irrigations	1	2	3	4	5	6	7	8
	----- <u>Dates</u> -----							
First	5/6	4/17	5/10	4/29	4/20	4/20	4/1	4/15
Second		6/7	6/27	6/1	5/15	5/15	5/15	5/15
Third			8/13	7/1	6/14	7/10	5/30	6/1
Fourth				8/3	7/10	7/1	6/24	6/20
Fifth					8/10	7/22	7/5	7/3
Sixth						8/12	7/17	7/18
Seventh							8/5	8/1
Eighth								8/15

Barley

Labor and machine requirements.-- Data were collected for 80 fields of barley covering 686 acres in economic area II (table 16). Average size was 8.6 acres per field. The average yield of barley was 74.6 bushels per acre. The entire acreage was harvested by combine. Commercial fertilizer was applied to 186 acres (27 percent) and 229 acres (33 percent) were manured. Weeds were controlled by spraying on 227 acres or 33 percent of the land.

Table 16.- Labor and machine requirements per acre, and machinery used to produce and harvest barley, economic area II, Sevier River Basin, 1962

Operation	: Range in size :	: Times over :	: Area covered :	: Time per once over	
	: of equipment			: Man	: Machine
		<u>Number</u>	<u>Acres</u>	<u>Hours</u>	<u>Hours</u>
Fertilizing	7'-12'	1.0	186	.4	.3
Manuring	75-120 bu.	1.0	229	2.5	2.5
Plowing	2/12-2/18	1.0	605	1.3	1.3
Disking	5'-10'	1.3	88	.7	.7
Harrowing	5'-10'	1.6	606	.4	.4
Floating	6'-16'	1.4	455	.5	.5
Drilling	8'-17'	1.0	686	.5	.5
Corrugating	3 row	1.0	643	.5	.5
Ditching	Tractor ditcher	1.8	513	.2	.2
Spraying	20'-40'	1.0	227	.4	.3
Irrigating:					
First			686	1.4	
Second			675	1.1	
Third			575	1.1	
Fourth			258	1.1	
Fifth			56	.6	
Sixth			20	.7	
Combining	9'-14'	1.0	679	.9	.9
Hauling		1.0	660	.4	.4

Irrigation practices.--Complete irrigation data were collected for 65 fields containing 572 acres. Fields averaged 8.8 acres in size. The average yield of barley was 76.5 bushels per acre. Farmers irrigated an average of 3.4 times and applied a total of 1.9 acre-feet of water per acre. Irrigation streams averaged 3.4 cfs in size. The typical field had 3.2 settings and water was applied for 5.6 hours per setting. Irrigation runs averaged 235 yards in length and varied from 100 to 333 yards in length. Flood irrigation with corrugations was used to apply irrigation water.

Table 17.- Median dates of irrigations for barley by number of irrigations, economic area II, Sevier River Basin, 1962

Irrigations	1	2	3	4	5	6
	----- Dates -----					
First	5/28	5/15	5/1	4/20	4/30	4/30
Second		6/15	6/1	5/15	5/25	5/14
Third			7/1	6/10	6/15	5/30
Fourth				7/8	6/30	6/14
Fifth					7/15	6/30
Sixth						7/14

Corn for Silage

Labor and machine requirements.-- Data were collected for 42 fields of corn covering 364 acres in economic area II (table 18). Fields averaged 8.7 acres in size. The average yield of corn for silage was 16.0 tons per acre. Commercial fertilizer was applied to 138 acres (38 percent) and manure put on 237 acres (65 percent). Weeds were sprayed on 264 acres or 73 percent of the land.

Table 18.- Labor and machine requirements per acre, and machinery used to produce and harvest corn for silage, economic area II, Sevier River Basin, 1962

Operation	: Range in size : : of equipment	: Times over	: Area covered	: Time per once over	
				Man Hours	Machine Hours
		<u>Number</u>	<u>Acres</u>		
Fertilizing	7'-12'	1.0	138	.3	.3
Manuring	60-140 bu.	1.0	237	2.6	2.6
Plowing	2/12-2/16	1.0	364	1.2	1.2
Harrowing	2-4 sec.	1.6	364	.4	.4
Floating	6'-16'	1.5	122	.4	.4
Drilling	2-4 row	1.0	364	.6	.6
Cultivating	2-4 row	2.0	177	.9	.9
Ditching	Tractor ditcher	1.9	196	.2	.2
Spraying	6'-28'	1.0	264	.3	.3
Irrigating:					
First			364	1.2	
Second			364	.9	
Third			336	.9	
Fourth			276	.9	
Fifth			177	.7	
Sixth			89	.6	
Seventh			31	.6	
Eighth			9	.7	
Harvesting	1 row	1.0	364	3.9	3.5

Irrigation practices.-- Complete irrigation data were collected for 36 fields containing 316 acres. Fields averaged 8.8 acres in size. The average yield of corn silage was 16 tons. Farmers irrigated an average of 4.4 times and applied a total of 2.1 acre-feet of water per acre. Irrigation streams averaged 3.3 cfs in size. The typical field had 3.0 settings and water was applied for 5.1 hours per setting. Irrigation runs averaged 217 yards in length and varied from 83 to 400 yards in length.

Table 19. Median dates of irrigations for corn for silage by number of irrigations, economic area II, Sevier River Basin, 1962

Irrigations	2	3	4	5	6	7	8
	<u>Dates</u>						
First	5/7	5/15	5/15	5/12	5/28	5/15	4/5
Second	7/10	7/1	6/15	6/15	6/30	6/1	4/25
Third		8/15	7/10	7/10	7/14	6/15	5/10
Fourth			8/12	7/30	7/25	7/1	5/25
Fifth				8/15	8/1	7/15	6/10
Sixth					8/15	8/1	6/25
Seventh						8/15	7/10
Eighth							7/25

Wheat

Labor and machine requirements.--Data were collected for 6 fields of wheat covering 40 acres in economic area II (table 20). Fields averaged 6.7 acres in size. The average yield of wheat was 65.3 bushels per acre. The crop was harvested by combine. Manure was put on 20 acres (50 percent) and 6 acres (15 percent) were sprayed for weed control purposes.

Table 20.- Labor and machine requirements per acre, and machinery used to produce and harvest wheat, economic area II, Sevier River Basin, 1962

Operation	: Range in size : : of equipment	:	: Times over	: Area covered	: Time per once over	
					Man	Machine
			<u>Number</u>	<u>Acres</u>	<u>Hours</u>	<u>Hours</u>
Manuring	80 bu.		1.0	20	NA 1/	NA 1/
Plowing	2/14-3/14		1.0	40	1.3	1.3
Harrowing	2-3 sec.		1.3	40	.4	.4
Floating	8'-12'		1.5	34	.4	.4
Drilling	13-16 drop		1.0	40	.5	.5
Corrugating	3 row		1.0	40	.4	.4
Ditching	Tractor ditcher		2.0	24	.4	.1
Spraying	20'		1.0	6	.3	.3
Irrigating:						
First				40	2.0	
Second				40	1.4	
Third				40	1.4	
Fourth				23	.8	
Combining	14'		1.0	40	.8	.8
Hauling			1.0	40	.3	.3

1/ Man and machine hours for applying manure were not available.

Irrigation practices.-- Complete irrigation data were collected for 5 fields containing 34 acres. Fields averaged 6.8 acres in size. The average yield of wheat was 67.9 bushels. Farmers irrigated an average of 3.7 times and applied a total of 2.1 acre-feet of water per acre. Irrigation streams averaged 2.8 cfs in size. The typical field had 2.9 settings and water was applied for 5.7 hours per setting. Irrigation runs averaged 205 yards in length and varied from 170 to 220 yards in length. Flood irrigation with corrugations was used to apply irrigation water.

Table 21.- Median dates of irrigation for wheat by number of irrigations, economic area II, Sevier River Basin, 1962

Irrigations	3	4
	- - - - - <u>Dates</u> - - - - -	
First	4/5	4/20
Second	5/15	5/20
Third	6/20	6/19
Fourth		7/5

Sugar Beets

Labor and machine requirements.-- Data were collected for 17 fields of sugar beets covering 138 acres in economic area II (table 22). Fields averaged 8.1 acres in size. The average yield of sugar beets was 16.5 tons per acre. Thinning, hoeing and harvesting was hired. Man and machine hours for these operations were not available. Commercial fertilizer was applied to 118 acres (86 percent) and manure to 74 acres (54 percent).

Irrigation practices.-- Complete irrigation data were collected for 16 fields containing 131 acres. Fields averaged 8.2 acres in size. The average yield was 16.9 tons. Farmers irrigated an average of 8.8 times during the season and applied a total of 3.8 acre-feet of water per acre. Irrigation streams averaged 2.8 cfs in size. The typical field had 2.3 settings and the water was applied for 6.6 hours per setting. The average length of irrigation runs was 217 yards with a variation from 150 to 330 yards in length.

Table 22.- Labor and machine requirements per acre, and machinery used to produce and harvest sugar beets, economic area II, Sevier River Basin, 1962

Operation	: Range in size : : of equipment	: Times over	: Area covered	: Time per once over	
				Man	Machine
		Number	Acres	Hours	Hours
Fertilizing	10'-12'	1.0	118	.4	.4
Manuring	80-90 bu.	1.0	74	1.5	1.5
Plowing	2/14-4/14	1.0	129	1.1	1.1
Harrowing	10'-14'	1.7	118	.4	.4
Floating	8'-12'	1.6	90	.3	.3
Drilling	4 row	1.0	138	.7	.7
Cultivating	4-6 row	5.9	138	.6	.6
Ditching	Tractor ditcher	2.0	83	.2	.2
Thinning	Hired <u>1/</u>	1.0	138	Hired <u>1/</u>	Hired <u>1/</u>
Hoeing	Hired <u>1/</u>	2.0	99	Hired <u>1/</u>	Hired <u>1/</u>
Irrigating:					
First			138	1.4	
Second			138	1.1	
Third			138	1.0	
Fourth			138	1.0	
Fifth			130	1.0	
Sixth			130	1.0	
Seventh			120	1.0	
Eighth			106	1.0	
Ninth			70	.8	
Tenth			51	.8	
Harvesting	Hired <u>1/</u>	1.0	138	Hired <u>1/</u>	Hired <u>1/</u>
Hauling	Hired <u>1/</u>	1.0	138	Hired <u>1/</u>	Hired <u>1/</u>

1/ Data not available because operations were custom hired.

Table 23.- Median dates of irrigations for sugar beets by number of irrigations, economic area II, Sevier River Basin, 1962

Irrigations	4	6	7	8	9	10
	----- Dates -----					
First	5/20	4/23	4/12	4/15	5/1	4/21
Second	6/20	5/16	5/15	6/3	5/15	5/15
Third	7/20	7/12	6/7	6/20	6/1	6/8
Fourth	8/20	7/26	6/21	7/2	6/15	6/15
Fifth		8/17	7/13	7/18	7/1	6/30
Sixth		9/10	8/6	8/2	7/15	7/15
Seventh			9/1	8/18	8/1	8/4
Eighth				9/4	8/15	8/21
Ninth					9/15	9/7
Tenth						9/20

ECONOMIC AREA III

The labor and machinery hours required to produce and harvest different crops in economic area III are shown in table 24. Figures indicate the weighted average man and machine hours expended by farmers.

Only normal field repairs are included in man hours. In cases where work was custom hired and data were not available, figures are shown without acreage on which work was custom hired. Hauling and spreading manure was charged to the crop to which it was applied.

Table 24.- Labor and machine hours used per acre to produce and harvest different crops, economic area III, Sevier River Basin, 1962

Crop	: Preharvest		: Irrigating :		: Harvest		: Total crops	
	: Man	: Machine :	: Man	: Man	: Machine:	: Man	: Machine	
	Hours							
Alfalfa	1.4	1.1	3.8	6.6	4.2	11.8	5.3	
Barley	4.6	4.1	3.6	1.1	1.1	9.3	5.2	
Corn								
silage	4.2	4.2	4.5	2.1	2.1	10.8	6.3	
Wheat	3.2	3.2	2.0	1.1	1.1	6.3	4.3	

Alfalfa

Labor and machine requirements.-- Data were collected for 79 fields of alfalfa covering 1,354 acres in economic area III (table 25). Fields averaged 17.1 acres in size. The average yield of alfalfa was 3.1 tons per acre for an average of 2.2 cuttings. The first crop yielded 1.8 tons per acre; second crop, 1.2 tons per acre; and the third crop .7 ton per acre. Two cuttings is the general practice in this area. Alfalfa hay is baled for handling and storage. Commercial fertilizer was applied to 256 acres (19 percent) and manure to 250 acres (18 percent). Insects were controlled by spraying on 1,228 acres or 91 percent of the land.

Table 25.- Labor and machine requirements per acre, and machinery used to produce and harvest alfalfa hay, economic area III, Sevier River Basin, 1962

Operation	: Range in size : : of equipment :	: Times over :	: Area covered :	:Time per once over	
				Man	Machine
		<u>Number</u>	<u>Acres</u>	<u>Hours</u>	<u>Hours</u>
Fertilizing	8'-12'	1.0	256	.6	.5
Manuring	50-120 bu.	1.0	250	4.0	3.1
Ditching	Tractor ditcher	1.1	830	.5	.3
Spraying	8'-40'	1.1	1,228	.2	.2
Irrigation:					
First			1,342	1.3	
Second			1,115	1.3	
Third			798	1.2	
Fourth			475	1.1	
Fifth			307	1.2	
Sixth			204	1.2	
Seventh			157	1.3	
Eighth			98	1.4	
Mowing	6'-7'	2.1	1,294	.5	.5
Raking	6'-10'	2.1	1,294	.4	.4
Windrowing	12'	2.6	60	.3	.3
Baling		2.2	1,330	.5	.5
Hauling and stacking:					
First		1.0	1,354	2.2	.9
Second		1.0	1,319	1.8	.7
Third		1.0	254	1.1	.4

Irrigation practices.-- Complete irrigation data were collected for 39 fields containing 570 acres. Fields averaged 14.6 acres in size. The average yield of hay was 3.3 tons. Alfalfa lands were irrigated an average of 4.1 times during the season. An average of 2.5 acre-feet of water was applied per irrigated acre. Irrigation streams averaged 2.5 cfs in size. The typical field had 9.8 settings and water was applied for 4.4 hours per setting. Irrigation runs averaged 237 yards in length and varied from 75 to 281 yards in length. Flood irrigating was the most common method of applying irrigation water.

Table 26.- Median dates of irrigations for alfalfa by number of irrigations, economic area III, Sevier River Basin, 1962

Irrigations	1	2	3	4	5	6	7	8
	<u>Dates</u>							
First	4/5	5/15	5/15	5/12	5/1	5/3	5/19	5/18
Second		6/3	6/15	5/30	5/15	5/14	6/5	6/6
Third			7/10	6/23	5/30	5/27	6/18	6/23
Fourth				7/24	6/26	6/7	7/10	7/7
Fifth					7/14	7/1	7/25	7/22
Sixth						7/13	8/15	8/6
Seventh							9/1	8/22
Eighth								9/6

Barley

Labor and machine requirements.-- Data were collected for 52 fields of barley covering 490 acres in economic area III (table 27). Fields averaged 9.4 acres in size. The average yield of barley was 53.7 bushels per acre. The entire acreage was harvested by combine. Commercial fertilizer was applied to 46 acres (9 percent) and manure put on 112 acres (23 percent). Weeds were sprayed on 157 acres or 32 percent of the land. Irrigated acreage included 445 acres of the 490 total acres.

Table 27.- Labor and machine requirements per acre, and machinery used to produce and harvest barley, economic area III, Sevier River Basin, 1962

Operation	: Range in size : : of equipment :	: Times over :	: Area covered :	: Time per once over	
				Man	Machine
		<u>Number</u>	<u>Acres</u>	<u>Hours</u>	<u>Hours</u>
Fertilizing	8'-10'	1.0	46	.3	.3
Manuring	40-110 bu.	1.0	112	3.3	2.0
Plowing	2/14	1.0	481	1.4	1.4
Disking	2'-6'	1.8	31	.6	.6
Harrowing	20'-24'	1.6	422	.4	.4
Floating	7'-10'	1.2	320	.5	.5
Drilling	6'-10'	1.0	490	.5	.5
Corrugating	2-4 row	1.0	443	.5	.5
Ditching	Tractor ditcher	1.2	328	.5	.2
Spraying	8'-25'	1.0	157	.4	.4
Irrigating:					
First			464	1.7	
Second			388	1.4	
Third			263	1.0	
Fourth			139	.9	
Fifth			58	.8	
Sixth			58	.7	
Combining	5'-12'	1.0	490	.7	.7
Hauling		1.0	470	.5	.5

Irrigation practices.-- Complete irrigation data were collected for 36 fields containing 318 acres. Fields averaged 8.8 acres in size. The average yield of barley was 58.8 bushels per acre. Farmers irrigated an average of 3.1 times and applied a total of 2.1 acre-feet of water per acre. Irrigation streams averaged 2.3 cfs in size. The typical field had 6.5 settings and water was applied for 4.7 hours per setting. Irrigation runs averaged 210 yards in length, but varied from 100 to 450 yards in length. Flood irrigation with corrugations was used to apply irrigation water.

Table 28.- Median dates of irrigations for barley by number of irrigations, economic area III, Sevier River Basin, 1962

Irrigations	1	2	3	4	5	6
	- - - - - <u>Dates</u> - - - - -					
First	6/2	5/19	5/21	5/5	5/1	4/4
Second		6/16	6/25	5/30	5/15	4/26
Third			7/18	6/16	5/30	5/17
Fourth				7/10	6/12	6/11
Fifth					6/26	7/3
Sixth						7/26

Corn for Silage

Labor and machine requirements.-- Data were collected for 6 fields of corn covering 53 acres in economic area III (table 29). Fields averaged 8.8 acres in size. The average yield of corn for silage was 16.2 tons per acre. Commercial fertilizer was applied to 16 acres (30 percent) and manure put on 32 acres (60 percent). Weeds were sprayed on 36 acres or 68 percent of the land.

Irrigation practices.-- Complete irrigation data were collected for 2 fields containing 33 acres. Fields averaged 16.5 acres in size. The average yield of corn silage was 20 tons per acre. Farmers irrigated corn for silage an average of 3.8 times and applied a total of 1.9 acre-feet of water per acre. Irrigation streams averaged 1.7 cfs in size. The typical field had 38.7 settings and water was applied for 1.5 hours per setting. Irrigation runs averaged 182 yards in length and varied from 133 to 225 yards in length.

Table 29.- Labor and machine requirements per acre, and machinery used to produce and harvest corn for silage, economic area III, Sevier River Basin, 1962

Operation	: Range in size : : of equipment	: Times over : <u>Number</u>	: Area covered : <u>Acres</u>	: Time per once over	
				<u>Man</u> <u>Hours</u>	<u>Machine</u> <u>Hours</u>
Fertilizing	10'-12'	1.0	16	.2	.2
Manuring	60 bu.	1.0	32	2.0	2.0
Plowing	2/14	1.0	53	1.1	1.1
Harrowing	2-3 sec.	1.6	47	.2	.2
Floating	8'-12'	1.4	47	.3	.3
Drilling	2 row	1.0	53	.6	.6
Cultivating	2-3 row	1.0	14	1.3	1.3
Ditching	Tractor ditcher	1.0	37	.1	.1
Spraying	14'	1.0	36	.3	.3
Irrigating:					
First			53	1.1	
Second			53	1.0	
Third			53	1.0	
Fourth			45	1.0	
Fifth			13	1.1	
Sixth			13	1.1	
Harvesting	1 row	1.0	53	2.1	2.1

Table 30.- Median dates of irrigations for corn for silage by number of irrigations, economic area III, Sevier River Basin, 1962

Irrigations	3	4
	<u>Dates</u>	
First	6/1	6/13
Second	7/1	7/10
Third	8/1	8/1
Fourth		8/21

Wheat

Labor and machine requirements.-- Data were collected for 7 fields of wheat covering 80 acres in economic area III (table 31). Fields averaged 11.4 acres in size. The average yield of wheat was 30.2 bushels per acre. The crop was harvested by combine. Weeds were controlled by spraying on 33 acres or 41 percent of the land. Of the 80 total acres, 28 were dryland and 52 irrigated.

Table 31.- Labor and machine requirements per acre, and machinery used to produce and harvest wheat, economic area III, Sevier River Basin, 1962

Operation	: Range in size : : of equipment	: Times over : <u>Number</u>	: Area covered : <u>Acres</u>	:Time per once over	
				<u>Man</u> Hours	<u>Machine</u> Hours
Plowing	2/14-4/14	1.0	80	1.3	1.3
Harrowing	2-3 sec.	1.6	80	.3	.3
Floating	8'-12'	1.4	52	.5	.5
Drilling	6'-10'	1.0	80	.5	.5
Corrugating	2-3 row	1.0	43	.5	.5
Ditching	Tractor ditcher	1.0	28	.2	.2
Spraying	40'	1.0	33	.2	.2
Irrigating:					
First			52	1.1	
Second			52	1.1	
Third			11	1.3	
Fourth			4	3.3	
Fifth			4	3.3	
Sixth			4	3.3	
Combining	9'-10'	1.0	80	.6	.6
Hauling		1.0	80	.5	.5

Irrigation practices.-- Complete irrigation data were collected for 5 fields containing 45 acres. Fields averaged 9 acres in size. The average yield was 39.4 bushels per acre. Farmers irrigated an average of 2.6 times and applied a total of 1.6 acre-feet of water per acre. Irrigation streams averaged 2.4 cfs in size. The typical field had 7.4 settings and water was applied for 3.8 hours per setting. Irrigation runs averaged 315 yards in length and varied from 150 to 600 yards in length. Flood irrigation with corrugations was used to apply irrigation water.

Table 32.- Median dates of irrigations for wheat by number of irrigations, economic area III, Sevier River Basin, 1962

Irrigations	2	3	6
	<u>Dates</u>		
First	6/1	5/20	5/1
Second	6/23	5/30	5/18
Third		6/11	6/5
Fourth			6/22
Fifth			7/9
Sixth			7/26

ECONOMIC AREA IV

The labor and machinery hours required to produce and harvest different crops in economic area IV are shown in table 33. Figures indicate the weighted average man and machine hours expended by farmers. In some instances data are incomplete; these cases have been footnoted with appropriate explanation.

Only normal field repairs are included in man hours. In cases where work was custom hired and data were not available, figures are shown without acreage on which work was custom hired. Hauling and spreading manure was charged to the crop to which it was applied.

Table 33.- Labor and machine hours used per acre to produce and harvest different crops, economic area IV, Sevier River Basin, 1962

Crops	: Preharvest		: Irrigating :	: Harvest		: Total crops	
	: Man	: Machine	: Man	: Man	: Machine	: Man	: Machine
	<u>Hours</u>						
Alfalfa hay	.4	.4	2.5	5.8	3.6	8.7	4.0
Alfalfa hay and seed	.3	.3	5.1	3.6	2.7	9.0	3.0
Alfalfa seed	.5	.5	1.7	1.5	1.5	3.7	2.0
Barley	3.2	3.2	1.7	1.3	1.3	6.2	4.5
Corn silage	<u>1/3.2</u>	<u>1/3.2</u>	3.0	3.7	2.8	<u>1/9.9</u>	<u>1/6.0</u>
Wheat	2.5	2.5	2.4	1.8	1.7	6.7	4.2

1/ Time for spreading manure on 28 acres not included.

Alfalfa for Hay

Labor and machine requirements.-- Data were collected for 37 fields of alfalfa covering 597 acres in economic area IV (table 34). Fields averaged 16.1 acres in size. The average yield of alfalfa was 3.2 tons per acre for 2.2 cuttings. The first cutting yielded 1.8 tons per acre; second cutting 1.2 tons per acre; and the third cutting .8 ton per acre. The number of cuttings depended upon the amount of irrigation water available. The majority of the hay is baled for handling and storage. Commercial fertilizer was applied to 131 acres (22 percent) and manure put on 31 acres (5 percent). Insects were sprayed an average of 1.8 times on 356 acres or 59 percent of the land. Dryland alfalfa accounted for 2 acres of the 597 total acres.

Table 34.- Labor and machine requirements per acre and machinery used to produce and harvest alfalfa hay, economic area IV, Sevier River Basin, 1962

Operation	: Range in size : : of equipment	: : Times over	: : Area covered	:Time per once over	
				Man Hours	Machine Hours
		<u>Number</u>	<u>Acres</u>		
Fertilizing	8'	1.0	131	.2	.2
Manuring	60-75 bu.	1.0	31	3.0	2.5
Ditching	Tractor ditcher	3.1	177	.1	.1
Spraying	16'-50'	1.8	356	.1	.1
Irrigating:					
First			595	1.0	
Second			536	.9	
Third			313	.9	
Fourth			108	.9	
Fifth			73	.8	
Mowing	5'-7'	2.3	410	.4	.4
Raking	7'-14'	2.3	410	.4	.4
Windrowing	12'	1.9	187	.3	.3
Baling		2.2	518	.5	.5
Hauling and stacking:					
First		1.0	597	1.9	.6
Second		1.0	489	1.2	.4
Third		1.0	237	.7	.2
Chopping		2.7	72	.8	.7

Irrigation practices.-- Complete irrigation data were collected for 31 fields containing 506 acres. Fields averaged 16.3 acres in size. The average yield was 3.2 tons per acre. The entire acreage was irrigated an average of 2.8 times and an average of 2.2 acre-feet of water per acre were applied. Irrigation streams averaged 6.3 cfs in size. The typical field had 6.3 settings and water was applied for 3.8 hours per setting. Irrigation runs averaged 241 yards in length and varied from 55 to 600 yards in length. Both border and flood irrigation methods were used to apply irrigation water.

Table 35.- Median dates of irrigations for alfalfa hay by number of irrigations, economic area IV, Sevier River Basin, 1962

Irrigations	1	2	3	4	5	8
	----- Dates -----					
First	5/8	5/10	5/10	4/15	4/15	4/10
Second		6/16	6/20	5/20	5/2	4/24
Third			8/10	6/25	6/20	5/7
Fourth				8/15	7/25	5/21
Fifth					8/15	6/7
Sixth						7/7
Seventh						7/21
Eighth						8/21

Alfalfa for Hay and Seed Production

Labor and machine requirements.-- Data were collected on 20 fields of alfalfa covering 605 acres in economic area IV (table 36). Fields averaged 30.3 acres in size. The average yield was 1.2 tons of hay and 176.4 pounds of seed per acre. The normal procedure is to cut one crop of hay and harvest seed from the second crop. The majority of the hay is baled for handling and storage. All the alfalfa seed was harvested with a combine, except for 30 acres which were threshed with a stationary machine. About half of the seed acreage was windrowed prior to combining. No fertilizer was used on any of the fields. Farmers sprayed insects an average of 2.8 times on 457 acres or 86 percent of the land.

Irrigation practices.--Complete irrigation data were collected for 19 fields containing 591 acres. Fields averaged 31.1 acres in size. The average yield was 1.1 tons of hay and 157 pounds of seed. Farmers irrigated alfalfa an average of 2.9 times during the season and applied a total of 3.1 acre-feet of water per acre. Irrigation streams averaged 4.8 cfs in size. The typical field had 16.2 settings and water was applied for 5.2 hours per setting. Irrigation runs averaged 290 yards in length and varied from 110 to 440 yards in length. Borders were the most common method used to apply irrigation water.

Table 36.- Labor and machine requirements per acre, and machinery used to produce and harvest alfalfa hay and seed, economic area IV, Sevier River Basin, 1962

Operation	: Range in size : : of equipment :	: Times over :	:Time per once over		
			Man	Machine	
		<u>Number</u>	<u>Acres</u>	<u>Hours</u>	<u>Hours</u>
Ditching	Tractor ditcher	2.2	110	.1	.1
Spraying	25'-50'	2.8	457	.1	.1
Irrigating:					
First			605	1.4	
Second			465	1.8	
Third			375	2.1	
Fourth			273	2.3	
Mowing	6'-7'	1.0	<u>1</u> /204	.5	.5
Raking	6'-12'	1.0	<u>1</u> /204	.4	.4
Windrowing	12'	1.3	<u>1</u> /530	.3	.3
Baling		1.0	555	.5	.5
Combining		1.0	575	.9	.9
Threshing		1.0	30	1.3	1.3
Hauling and stacking hay:					
First		1.0	605	1.3	.4
Seed		1.0	605	.2	.2
Chopping		1.0	50	.8	.8

1/ Of the 605 acres of alfalfa cut for hay, 204 acres were mowed and raked and 401 acres windrowed. 282 acres of alfalfa seed were windrowed prior to combining.

Table 37.- Median dates of irrigations for alfalfa used for hay and seed production by number of irrigations, economic area IV, 1962

Irrigations	1	2	3	4
	<u>Dates</u>			
First	5/8	4/15	5/5	4/5
Second		6/15	6/25	5/5
Third			8/5	6/20
Fourth				7/28

Alfalfa for Seed

Labor and machine requirements.--Data were collected from 7 fields of alfalfa covering 317 acres in economic area IV (table 38). Fields averaged 45.3 acres in size. The average yield of alfalfa seed was 264.1 pounds of seed per acre. The normal procedure is to cut only one crop of seed per year. Common practice is to windrow and combine seed. Commercial fertilizer was applied to 200 acres (52 percent) and manure to 5 acres (1 percent). The alfalfa was sprayed an average of 2.9 times for insect control on 314 acres or 99 percent of the land.

Table 38.- Labor and machine requirements per acre, and machinery used to produce and harvest alfalfa seed, economic area IV, Sevier River Basin, 1962

Operation	: Range in size : : of equipment :	: Times over : <u>Number</u>	: Area covered : <u>Acres</u>	:Time per once over	
				<u>Man</u> Hours	<u>Machine</u> Hours
Fertilizing	8'-12'	1.0	200	.2	.2
Manuring	75 bu.	1.0	5	4.8	4.8
Ditching	Tractor ditcher	2.0	73	.1	.1
Spraying	34'-40'	2.9	314	.1	.1
Irrigating:					
First			317	.6	
Second			265	.6	
Third			200	.8	
Windrowing	12'	1.0	271	.3	.3
Combining	10'-14'	1.0	317	1.1	1.1
Hauling seed		1.0	317	.1	.1

Irrigation practices.--Complete irrigation data were collected for 6 fields containing 117 acres. Fields averaged 19.5 acres in size. The average yield was 367 pounds of seed per acre. Farmers irrigated an average of 1.6 times and applied a total of .9 acre-foot of water per acre. Irrigation streams averaged 5.7 cfs in size. The typical field had 4.6 settings and water was applied for 5.2 hours per setting. Irrigation runs averaged 385 yards in length and varied from 230 to 550 yards in length. Borders were the most common method used to apply irrigation water.

Table 39.- Median dates of irrigations for alfalfa seed by number of irrigations, economic area IV, Sevier River Basin, 1962

Irrigations	1	2	3
	<u>Dates</u>		
First	5/15	5/15	5/10
Second		7/5	7/15
Third			8/15

Barley

Labor and machine requirements.--Data were collected for 34 fields of barley covering 431 acres in economic area IV (table 40). Fields averaged 12.7 acres in size. The average yield of barley was 58.3 bushels per acre. Combining was used to harvest grain. Commercial fertilizer was applied to 40 acres (9 percent) and manure to 59 acres (14 percent). Weeds were sprayed on 75 acres or 17 percent of the land.

Table 40.- Labor and machine requirements per acre, and machinery used to produce and harvest barley, economic area IV, Sevier River Basin, 1962

Operation	: Range in size : : of equipment	: Times over	: Area covered	: Time per once over	
				Man Hours	Machine Hours
		Number	Acres		
Fertilizing	10'-12'	1.0	40	.3	.3
Manuring	75 bu.	1.0	59	2.4	2.4
Plowing	2/14-2/16	1.0	396	1.3	1.3
Disking	5'-8'	1.1	127	.5	.5
Harrowing	2-5 sec.	1.5	252	.3	.3
Floating	7'-20'	1.5	300	.4	.4
Drilling	8'-24'	1.0	431	.4	.4
Corrugating	3-4 row	1.0	51	.5	.5
Ditching	Tractor ditcher	2.7	232	.2	.2
Spraying	20'-40'	1.1	75	.2	.2
Irrigating:					
First			431	.7	
Second			425	.6	
Third			293	.4	
Fourth			144	.3	
Combining	5'-15'	1.0	431	.8	.8
Hauling		1.0	431	.5	.5

Irrigation practices.-- Complete irrigation data were collected for 31 fields containing 406 acres. Fields averaged 13.1 acres in size. The average yield was 57 bushels per acre. Farmers irrigated an average of 3.1 times and applied an average of 1.8 acre-feet of water per acre. Irrigation streams averaged 6.3 cfs in size. The typical field had 3.9 settings and water was applied for 3.8 hours per setting. Irrigation runs averaged 277 yards in length and varied from 80 to 600 yards in length. Flood irrigation with corrugations was used to apply irrigation water.

Table 41.- Median dates of irrigation for barley by number of irrigations, economic area IV, Sevier River Basin, 1962

Irrigations	1	2	3	4
	- - - - - Dates - - - - -			
First	5/15	5/5	4/20	4/23
Second		6/15	5/25	5/12
Third			6/30	6/5
Fourth				7/1

Corn for Silage

Labor and machine requirements.-- Data were collected for 10 fields of corn covering 117 acres in economic area IV (table 42). Fields averaged 11.7 acres in size. The average yield of corn for silage was 16.2 tons per acre. Commercial fertilizer was applied to 25 acres (21 percent) and manure to 28 acres (24 percent). Weeds were controlled by spraying on 65 acres or 56 percent of the land.

Table 42.- Labor and machine requirements per acre, and machinery used to produce and harvest corn for silage, economic area IV, Sevier River Basin, 1962

Operation	: Range in size : : of equipment :	: Times over :	: Area covered :	:Time per once over	
				Man	Machine
		<u>Number</u>	<u>Acres</u>	<u>Hours</u>	<u>Hours</u>
Fertilizing	10'-12'	1.0	25	.2	.2
Manuring	75-80 bu.	1.0	28	NA <u>1/</u>	NA <u>1/</u>
Plowing	2/14-2/18	1.0	107	1.0	1.0
Harrowing	2-5 sec.	1.3	69	.3	.3
Floating	8'-10'	2.8	63	.3	.3
Drilling	2-4 row	1.0	117	.7	.7
Cultivating	2-4 row	2.0	57	.7	.7
Ditching	Tractor ditcher	2.2	58	.1	.1
Spraying	10'-40'	1.0	65	.2	.2
Irrigating:					
First			117	.9	
Second			102	.9	
Third			102	.9	
Fourth			60	.5	
Fifth			32	.5	
Sixth			22	.3	
Seventh			18	.2	
Eighth			3	.7	
Harvesting	1 row	1.0	117	3.7	2.8

1/ Man and machine hours for applying manure were not available.

Irrigation practices.--Complete irrigation data were collected for 8 fields containing 104 acres. Fields averaged 13 acres in size. The average yield was 17.1 tons per acre. Farmers irrigated an average of 3.9 times and applied a total of 2.0 acre-feet of water per acre. Irrigation streams averaged 5.6 cfs in size. The typical field had 3.4 settings and water was applied for 4.3 hours per setting. Irrigation runs averaged 259 yards in length and varied from 133 to 440 yards in length.

Table 43.- Median dates of irrigations for corn for silage by number of irrigations, economic area IV, Sevier River Basin, 1962

Irrigations	3	4	5	6	7	8
	<u>Dates</u>					
First	6/5	5/24	6/1	5/25	4/20	5/4
Second	7/5	6/24	7/4	6/10	6/1	7/11
Third	8/10	7/24	7/18	6/25	6/20	7/18
Fourth		8/24	8/3	7/10	7/5	7/25
Fifth			8/17	7/25	7/20	8/1
Sixth				8/5	8/5	8/8
Seventh					8/20	8/15
Eighth						8/22

Wheat

Labor and machine requirements.-- Data were collected for 5 fields of wheat covering 57 acres in economic area IV (table 44). Fields averaged 11.4 acres in size. The average yield of wheat was 43.1 bushels per acre. A combine was used to harvest the crop. Commercial fertilizer was applied to 5 acres or 19 percent of the land.

Table 44.- Labor and machine requirements per acre, and machinery used to produce and harvest wheat, economic area IV, Sevier River Basin, 1962

Operation	: Range in size : : of equipment :	: Times over :	: Area covered :	:Time per once over	
				Man	Machine
		<u>Number</u>	<u>Acres</u>	<u>Hours</u>	<u>Hours</u>
Fertilizing	12'	1.0	5	.6	.6
Plowing	2/12-2/16	1.0	32	1.5	1.5
Disking	7'	1.0	25	.8	.8
Harrowing	1-4 sec.	1.0	42	.5	.5
Floating	8'	1.5	11	.6	.6
Drilling	12-16 drop	1.0	57	.6	.6
Corrugating	3-4 row	1.0	6	.7	.7
Ditching	Tractor ditcher	1.5	17	.1	.1
Irrigating					
First			26	2.2	
Second			20	2.2	
Third			20	1.9	
Combining	Hired	1.0	57	1.3	1.3
Hauling		1.0	57	.5	.4

Irrigation practices.-- Complete irrigation data were collected for 2 fields containing 20 acres. Fields averaged 10 acres in size. The average yield was 76 bushels per acre. Farmers irrigated an average of 3.0 times and applied a total of 4.5 acre-feet of water per acre. Irrigation streams averaged 7.2 cfs in size. The typical field had 7.0 settings and water was applied for 3.6 hours per setting. Irrigation runs averaged 210 yards in length and varied from 125 to 330 yards in length. Flood irrigation with corrugations was used to apply irrigation water.

Table 45.- Median dates of irrigation for wheat by number of irrigations, economic area IV, Sevier River Basin, 1962

Irrigations	2	3
	- - - - - <u>Dates</u> - - - - -	
First	5/20	5/1
Second	6/9	5/20
Third		6/15

