



Farm Terracing Costs

By

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Terraces can be built at low cost during slack seasons, using labor and equipment already available on most farms. This bulletin summarizes the experiences of 76 farmers in Kiowa County and 23 in Muskogee County, and gives average costs of terrace construction on these 99 farms.

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SUMMARY

The following summary table shows the average amount of cash outlay per mile experienced by 23 Muskogee and 76 Kiowa County farmers in constructing terraces of the various sizes and by the respective methods designated. The detailed costs involving all labor and equipment as well as time used in running lines, plowing, and making fills are shown in Table I, page 6.

Cash Outlay Used in Building Terraces; Muskogee and Kiowa Counties.

Width of Terrace	Kind of Power Used	Cash Cost per Mile None
Muskogee County		
(Average experience of 23 farmers.)		
Under 15 feet	Horses or mules	
Horses or mules	14 to 32 feet	\$ 5.00
15 feet or wider	County tractor	44.00
Kiowa County		
(Average experience of 76 farmers.)		
8 to 40 feet	Horses or mules	\$ 3.00
Under 24 feet	Horses or mules, and farm tractor	19.75
24 feet and wider	Horses or mules, and farm tractor	28.75
Under 24 feet	County tractor	36.65
24 feet and wider	County tractor	72.00

In bulletin B-276, costs per mile are incorrectly stated on page 3. *The figures given in Table I, page 6, are correct.* The statement on page 3 should read: “. . . it is apparent that to construct the 12 foot terraces with horse power involved a total cost of \$50.76 per mile. With horses the total cost of the 20 foot terrace was \$63.26, and with heavy equipment \$67.40 per mile for the 22 foot terrace. . . .”

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By PETER NELSON and E. A. TUCKER*
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The application of conservation measures is often limited by the cost involved. In order to determine the cost of terrace construction under normal farm conditions and with ordinary farm equipment, surveys were made in Kiowa and Muskogee counties. Seventy-six farmers in Kiowa and twenty-three farmers in Muskogee Counties who had constructed terraces on their own farms were interviewed. The data secured included information on type of terrace construction, labor and power use in building terraces, and the cash expenditures involved. The experience of these farmers indicates that terrace construction may be continued in spite of present shortages of equipment and labor. It also indicates that cash costs involved can be kept reasonably low. (See summary table, inside front cover.)

The results show that not only are total requirements of labor and power important, but equally significant is the fact that adequate structures can be built with little or no cash expense, and that they can be constructed with farm labor and power at a total cost reasonably in line with costs to be expected when the larger equipment is used. By assigning values of 30 cents per hour to farm labor, 50 cents to hired labor when used with small equipment, and \$1.00 when used with large equipment, 12 cents for horse power and \$2.00 per hour for the heavy road-building equipment, total costs per mile can be calculated for building terraces in Muskogee County with the two systems. By applying these values to the requirements reported, it is apparent that to construct the 12 foot terraces with horse power involved a total cost of \$51.16 per mile. With horses the total cost of the 20 foot terrace was \$64.36, and with heavy equipment \$64.40 per mile for the 22 foot terrace. Cash outlays in these instances amount to nothing in the first case, to \$5.00 in the second, and \$44.00 in the third if no charge was made for horse feed.

That these cost figures are higher than the \$42.00 currently allowed by the AAA for building terraces does not mean that a farmer cannot afford to build terraces. Cer-

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tainly on an income basis, terrace building at this rate could not compete with most farm jobs. But slack seasons offer an opportunity.

SLACK SEASONS GIVE TIME FOR CONSERVATION WORK

Farmers all know that labor requirements on the farm vary during different periods of the year. There are periods when there is much work to do, and periods that are comparatively slack. It is during the slack periods that well planned farm operations provide for such activities as building terraces, repairing old terraces, or running contour lines where needed.

It was found that a typical 320-acre farm in Klowa County growing about 120 acres of wheat, 30 of oats, 35 of cotton, and 20 of sorghums, besides keeping around 11 milk cows, 13 other cattle, a sow and 100 hens uses about 4,000 hours of man labor per year. If the labor were distributed equally throughout the year it would amount to an average of 328 hours per month. But the needs for labor are not uniformly distributed through the year. Figure 1 illustrates the month to month variation in the use of the labor on such a farm. The labor needed is average or above in only four months. During these four months, the labor requirement is highly critical. In fact, it may often happen that some tasks are only partially done during these months because of the pressure of other more important things that cannot wait. On the other hand, in seven months of the year 280 hours or less are used. In these months, miscellaneous general farm work and the like are done. In these slack periods, it is often necessary to have more labor on the farm than is fully utilized, to be certain of having even the minimum necessary to avoid serious loss during critical periods.

Experience shows that it is unsafe for a farmer to depend on hiring all the extra labor needed during critical periods such as wheat and cotton harvest. Therefore on a farm such as described here the regular farm labor force is often capable of supplying from 300 to 350 hours of labor per month. Thus during several months 25 to 75 hours of labor, depending somewhat upon the amount of seasonal labor hired, is available beyond the farm's needs. This labor often is hired out on road work, to the neighbors, or otherwise. This amount might be increased on many farms by improving ways of doing the regular work. Many enterprising farmers utilize this extra time in building or repairing terraces where needed or in running lines to establish contours.

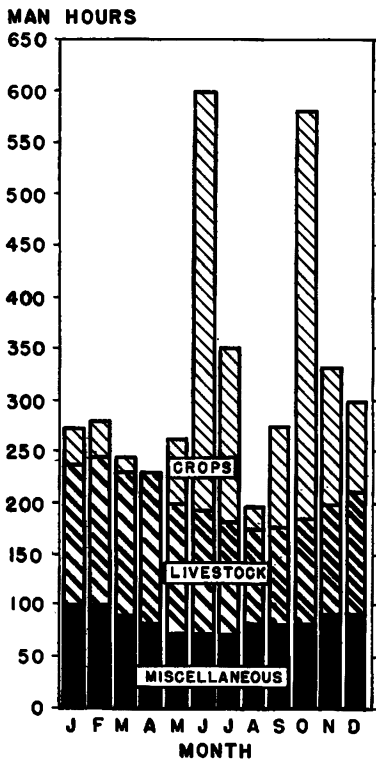


Fig. 1.—Man hours of labor required each month on a typical 320-acre general farm in Kiowa County.

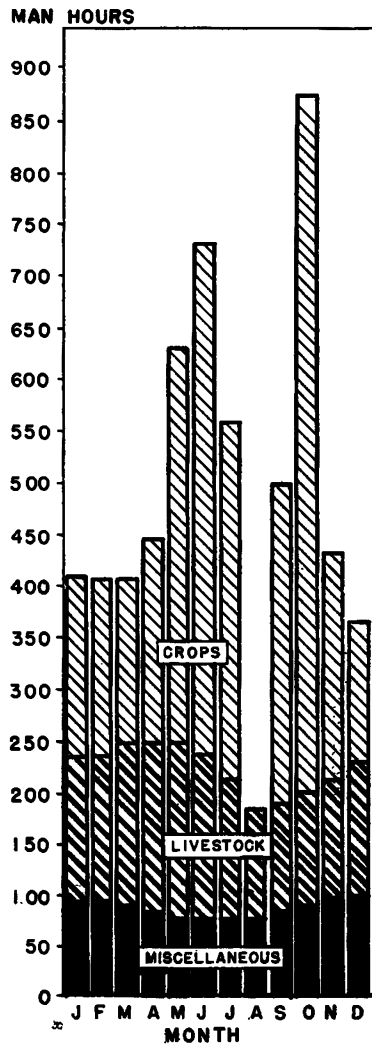


Fig. 2.—Man hours of labor required each month on a typical 160-acre general farm in Muskogee County.

TABLE I.—Labor and Power Used for Building Terraces.

County	Type of Power	Width of Terrace at Base (Feet)	KIOWA				MUSKOGEE			
			Horses	Horses and Tractor		Tractor		Horses		Horses and Tractor
			8 to 10 feet	Under 24 feet	24 feet or wider	Under 24 feet	24 feet or wider	Under 15 feet	15 feet or wider	14 to 32 feet
Number cases			25	10	24	8	9	10	10	3
Average width, feet			24	20	32	17	30	12	20	22
Average height, inches			22	17	15	17	17	25	25	24
Labor and Power Hours per Mile:										
Man labor, total			64	55	81	84	83	96	119	70
Man labor, hired			6	11	23	9	45	—	10	22
Horse work			194	47	76	—	—	183	213	75
Tractor power			—	19	23	43	66	—	—	11
Use of Man Labor per Mile:										
Running lines			10	7	8	9	7	11	14	10
Plowing			13	2	1	7	1	16	18	1
Terracing			31	31	49	46	65	52	48	22
Filling			10	15	23	22	10	17	39	37
Cost per Mile for Building Terraces:										
Labor, farm ¹			\$17.40	\$13.20	\$17.40	\$22.50	\$11.40	\$28.80	\$32.70	\$14.40
Labor, hired ²			3.00	5.50	11.50	4.50	22.50	—	5.00	22.00
Horse work ³			23.28	5.64	9.12	—	—	21.96	25.56	9.00
Tractor power ⁴			—	14.25	17.25	32.15	49.50	—	—	22.00
Cash cost, dollars			3.00	19.75	28.75	36.65	72.00	—	5.00	44.00
Total cost, dollars			43.68	38.59	55.27	59.15	83.40	50.76	63.26	67.40

¹ At 30 cents per hour.

² At 50 cents per hour when with small equipment and \$1.00 with heavy equipment.

³ At 12 cents per hour.

⁴ Assuming a rental rate at 75 cents per hour for farm tractors and \$2.00 with heavy equipment.

A similar situation is indicated in the case of a typical 160-acre general farm in Muskogee County (Figure 2.) With an average of 495 hours of labor used per month, requirements would be materially below this during six months. January, February, March, August, and December appear to be the months when the regular farm labor force would find time to engage in terrace building.

CASH OUTLAY FOR TERRACES CAN BE KEPT LOW

How much conservation work can be accomplished on the basis of the experience of farmers in Kiowa and Muskogee counties? The answer to this question is indicated by the data in Table I, summarized from reports made available by selected farmers in these counties.

For example, in Muskogee County (See figures on right side of table) terraces up to 15 feet in width were built with horse power, farm labor, and miscellaneous equipment including plows, home-made drags, scrapers, fresnoes, terracers, and small graders at a cost of 96 man hours of labor and 183 hours of horse work per mile. The terraces thus constructed average 12 feet in width and 25 inches in height. The only cash cost involved was the additional horse feed; all labor and equipment was either found on the farm, borrowed, or secured from neighbors on an exchange basis. Larger terraces averaging 20 feet in width and 25 inches in height required 119 hours of man labor per mile, of which 10 hours were hired. Their power requirements averaged 213 hours of horse work per mile. In a number of cases it was necessary to exchange teams with neighbors in order that the larger pieces of equipment could be used.

Three of the Muskogee county farmers interviewed had hired county road building equipment to build terraces. To put up a mile of terraces averaging 22 feet in width and 24 inches in height with heavy graders and 60 horse-power, track-type tractors required 11 hours with the tractor and 22 hours of hired labor. Constructing the necessary fills and outlets required 38 hours of family or exchange labor and 75 hours of horse work. Running lines required an additional 10 hours of labor per mile of terrace.

Kiowa County farmers reported similar experience (See left side of Table I). When using horse power alone, terraces averaging 24 feet wide and 22 inches high were put up at a total cost of 194 hours of horse work per mile and 64 hours of man labor, of which 6 hours were hired. Those using a combination of horses and farm tractors for power averaged 55

hours of man labor, 47 hours of horse work, and 19 hours of tractor use per mile of terrace less than 24 feet wide. Eleven hours of their labor was hired. Their structures averaged 20 feet wide and 17 inches high. For building terraces of 24 feet or wider with both horses and tractors for power, they used an average of 81 man hours, 76 horse hours, and 23 tractor hours. Hired labor for this group averaged 23 hours per mile. With only tractors as a source of power, terraces up to 24 feet were built with 84 hours of man labor and 43 hours with the tractor. They used 9 hours of hired labor per mile. The average width of these terraces was 17 feet, and the average height, 17 inches. Wider terraces, averaging 30 feet, and 17 inches high, were built with 83 hours of labor and 66 hours of work with the farm tractor. They used 45 hours of hired labor per mile. Farm tractors were used in all cases in the Kiowa County reports. Most of them were of the two-plow size.

Requirements reported here include total labor and power needs per mile of terrace, exclusive of work required for stabilizing outlets. As the work of sodding outlets and building masonry structures had not been completed in a large number of cases at the time this information was gathered, it was impossible to secure detailed information on labor requirements for this work. Hence these figures indicate the labor and power that farmers used in running lines, plowing constructing the ridge and channel, completing the necessary fills and cutting the outlets.