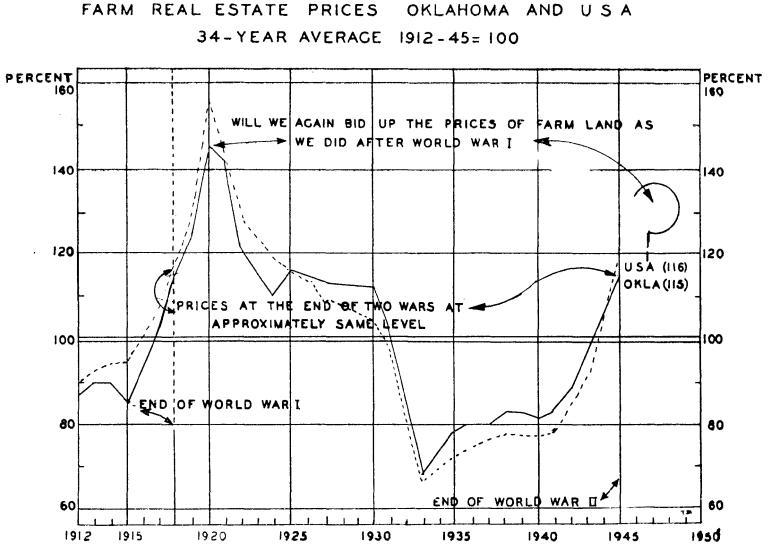
# *What Price for Farm Land?*




Circular No. 419

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EXTENSION SERVICE, OKLAHOMA A. AND M. COLLEGE
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# WHAT PRICE FOR FARM LAND?

Farm land prices are high. They are high because of good prices for farm products and the demand for maximum production. Prospective buyers, including farmers, have a large amount of ready cash with which to buy farm land. Low interest rates and ready credit have helped to bid up the selling price of land. Even in the presence of shortages of farm labor and equipment and other farm difficulties, the price of farm land is being forced above its past productive value in some areas.

How to determine the "productive value" of a farm being considered for purchase may be a problem. The price asked for a farm may be no higher than that at which other nearby farm of the same size and quality have been sold. However, that does not prove that a buyer with enough money for only a part payment, can purchase the farm at the price asked, and make enough money on the farm above living costs and necessary farm expenses to pay off the remaining debt upon the farm.

Production Value = (Production $\times$ Price of Products — Expense of Production) $\times$ Capitalization Rate.

## 1. PRODUCTION

The first step in determining the productive value of a farm is the determination of the typical production that can be obtained upon the farm. This will depend upon soil and climate. Soil texture, fertility, erosion, and drainage will affect the long-time productive capacity of the farm. The effect of such natural causes, plus the economic factors of the area or community, will be reflected in the "typical" cropping system being used on similar farms. The type of farming being followed in the area, or community, will show whether crop production is being used chiefly for cash crops or in a certain combination of crops and livestock. The cropping system selected as "typical" for the farm under consideration should be one that will maintain yields at present levels. The person considering buying a farm will in many cases know the common cropping systems and yields being obtained. If the buyer does not have such information, he may get it from local farmers or the county agent.

## 2. PRICES

After having determined probable production of the farm, there must next be determined the price of those products. If wartime prices were used, the resulting valuation would be high. If a purchase is made at a high valuation and a large debt assumed by the purchaser, it is possible that farm commodity prices would go down before the debt could be paid. It is also likely that the owner of the farm would be unwilling to sell at a valuation based upon prewar or depression prices. Therefore, a long-time average price would be more useful. A 35-year average of prices received by Oklahoma farmers for their farm products is, therefore, given in this leaflet. This list is given as only a rough guide in selecting prices to be used.

## 3. EXPENSES

Farm production times price gives gross income. The calculation of net farm income needed for the purpose of valuation is more difficult. Long-time average prices of farm products are easily calculated from recorded prices. But no such records are available for farm expenses. The shortest and most simple method of arriving at a net income figure is to determine a landlord's share of the gross farm income. The landlord's normal expenses can be more readily estimated than can the entire list of expenses of a farm owner-operator. The landlord's share of gross income less the landlord's expenses, leaves a net income figure. This may be "capitalized" by the prospective purchaser at a rate of his own choice in order to determine the price he may be willing to pay for the farm.

The "landlord method" of arriving at a farm valuation applied to a farm on which mostly cash crops are produced offers the simplest illustration. In the following example, the crops and land use are listed in columns 1 and 2. In column 3 are entered yields per acre. Total production is shown in column 4 and the landlord's share in colums 5 and 6. The 35-year average price is entered in column 7 and landlord's income in column 8.

## 4. CAPITALIZATION RATE

The capitalization rate is the ratio between annual income and value. It is similar to interest rates since the interest rate on money represents the annual money income received from $100 invested or loaned. Annual net income divided by the capitalization rate times 100 gives the capitalized value.

*Example 1*

| Crop | Acres | Yield per A. | Total Production | LANDLORD'S Share | LANDLORD'S Amount | 35-Year Avg. Price | Landlord's Income |
|---|---|---|---|---|---|---|---|
| Wheat | 60 | 18 | 1,080 bu. | ⅓ | 360 bu. | $1.28 per bu. | $460.80 |
| Cotton | 30 | lint 200 lbs. | 6,000 lbs. | ¼ | 1,500 lbs. | 17.7¢ per lb. | 265.50 |
| | | seed 400 lbs. | 12,000 lbs. | ¼ | 3,000 lbs. | $36.51 per T. | 54.76 |
| Hay | 20 | 1½ T. | 30 T. | ¼ | 7½ T. | $11.05 T. | 82.87 |
| Pasture | 40 | | | | | | 40.00 |
| Farmstead | 10 | | | | | | 25.00 |
| Total | 160 | | | | Gross Income | | 928.93 |

**Landlord's Expenses**

| | |
|---|---|
| Taxes | $100.00 |
| Insurance | 25.00 |
| Repairs | 60.00 |
| Depreciation on Bldgs. | 100.00 |
| Ginning | 15.00 |
| | $300 |

**Summary**

| | |
|---|---|
| **Total** Gross Income | $928.93 |
| **Less** Expense | 300.00 |
| Net Income | $628.93 |

Total Valuation, capitalized @ 5%:
$628.93 ÷ 5 = $125.78 × 100 = $12,578.00
Valuation per A. = $12,578.00 ÷ 160 = $78.61 per A.

The intention of the example here is simply to illustrate the method of capitalization. The final selection of a capitalization rate is the responsibility of the individual making an appraisal or purchase. The example used says that a farm that would make an annual net income of $628.93 would, if capitalized at 5 percent, have a productive value of $12,578. Sale price for the farm may be considerably different than this figure.

If the prospective buyer of the farm considers the farm buildings better than average, or considers that location near town, school, or paved highway added sometime to the value of the farm he might be willing to pay more for the farm. If he is buying the farm as an investment he may compare the expected annual income from the farm with that that could be derived from other investments. If other investments offer only 4 percent, he might apply a 4 percent capitalization rate to the calculated annual net farm income and offer $15,698 for the farm. It should be remembered the use of lower capitalization rates results in higher capitalized values, while increasing the capitalization rate decreases the capitalized value.

Most of the foregoing statements are made from the viewpoint of the buyer who is buying a farm as an investment, with the expectation of leasing the farm to a tenant. A second type of buyer may be purchasing land to enlarge the farm unit which he is already operating. Such a buyer may also consider the land purchase from the viewpoint of investment. If he is especially determined to acquire additional land by purchase to operate, he may apply lower capitalization rates to the estimated net income in arriving at a price which he would be willing to pay for the additional land. If credit is used in making the purchase, he will also give consideration to more conservative price offers as outlined in the succeeding paragraph. Still a third type of farm purchaser may be considered—the one purchasing a farm for a home and place of business. The viewpoint of this buyer is considered under a succeeding section "Owner-operator Income Estimates."

Some individuals consider the use of capitalization rates above 5 percent safer in arriving at estimates of farm values. This is especially true when the farm is purchased by the use of credit. The larger the necessary farm mortgage, the more care must be used to avoid the purchase of farm lands at inflated prices. In areas where crop production risks are greater, higher capitalization rates should be used even though the crop production risks were taken into account in determining annual average crop yields.

## BUILDINGS

The foregoing method of estimating farm valuation assumes that necessary usable buildings, fences, and other improvements are on the farm. If such improvements were badly in need of repair, the repair expense item would be increased. This would decrease the net income and the resulting capitalized valuation. Better than average buildings might not increase the farm productivity. Their effect upon final valuation would be shown by selection of the capitalization rate.

In judging the value of farm buildings consideration must be given to usefulness of the buildings in the type of farming being considered for the farm. A large dairy type barn would add little to the value of a farm where beef cattle are to be produced. Some unused, expensive, upright silos can be seen on farms in the small grain area of Oklahoma which add nothing to either the productive value or the sale price of those farms.

## OWNER-OPERATOR INCOME ESTIMATES

The landlord income method of estimating farm valuation is most readily used by one who may be purchasing land as an additional investment. Such a buyer has other business interests or other farm land, and may frequently have all, or nearly all, of the money necessary to pay the purchase price of the land. Even under conditions where the prospective buyer wants to buy a farm upon which to live and has only enough cash to make a required "down" payment, the landlord income method would still show the "productive value" of the farm. But it would not show whether or not the owner could expect to make a family living upon the farm and be able to pay off a mortgage-loan.

Probable net farm incomes, whether calculated upon the basis of landlord's income or the income of an owner-operator, are more readily made upon farms where the main income is from cash crops. In many areas of Oklahoma the main source of income is the sale of livestock and livestock products. The making of real practical estimates of probable income under livestock systems of farming is more difficult.

In making owner-operator estimates of income, especially where various livestock projects are added to the business, considerable more time and calculation are required. The expenses of an owner-operator include all those of a landlord, plus many additional ones. These additional expenses are less uniform in rates and occurrence than expenses such as taxes, insurance, and depreciation upon buildings and other improvements.

Such additional farm expense information can best be learned from summarized farm records.

A farmer who buys a farm will pay for it from money earned by sale of both livestock and crops. Therefore, both the farmer who buys a farm and the lender who may loan him money to buy the farm are interested in foreseeing the probable income from the farm based upon the type of farming he will be most likely to follow. For this purpose the Farm Credit Administration has prepared a "Farm Analysis Work Sheet." This work sheet may be secured upon request at the county agent's office or from the Farm Credit Administration at Wichita 2, Kansas.

In the example on page 8 there are listed income and expenses of a 160-acre farm as proposed for owner-operation.

The net farm income of $875.43 represents income to the owner-operator for both labor and capital investment. In order to determine return upon investment there should be deducted from the net farm income an amount equal to the value of the operator's labor. This labor allowance usually approximates cash family living expenses. If $600 of the net cash income were used for family living expenses the farm owner-operator would have left $275.43 per year for payment of interest and principal on a farm mortgage.

Included in this circular is a table showing annual payments required to repay farm loans on the standard amortization plan. Reference to this table shows that at $73.58 per $1,000 of debt, that the $275.43 per year would retire a loan of $3,700 @ 4 percent in 20 years. Or it would retire in 40 years a 3 percent loan of a little over $6,000. A lending agency would consider this point and also their own appraised value of the farm in determining the size of loan which it could make upon the farm.

These figures show that a long period of time might be required to pay for a farm. They show, also, that while that is being done the amount of money available for family desires in addition to a mere living is not large. The common solution of this problem by enterprising young farm operators is to enlarge the size of farm unit by renting land to operate in addition to that being purchased.

## COMPARE PURCHASE PRICE WITH OTHER SALES PRICES

After comparing the price being asked for a farm with the "productive value," the prospective buyer should compare the price with that of other similar farms that have been sold in the community. This sale price information may be secured

from other farm purchasers, local farmers, or from the record of real estate transfers kept by the county recorder of deeds.

*EXAMPLE 2*
*Income*

| Crop or Product | Acres | Amount Produced | Amount for Sale | Price[1] | Total Amount of Sales |
|---|---|---|---|---|---|
| Cotton | 10 | Lint 1800 lbs. Seed 1¾ T. | 1800 lbs. 1¾ T. | 17.7¢ per lb. $36.51 per T. | $318.60 63.89 |
| Wheat | 22 | 330 bu. | 300 bu. | $1.28 per bu. | 384.00 |
| Oats | 20 | 600 bu. | 100 bu. | .57 per bu. | 57.00 |
| Corn | 12 | 300 bu. | None | | |
| Gr. Sorghums | 20 | 400 bu. | None | | |
| Sweet Clover | 10 | Hay and pasture | None | | |
| Sowed Feed | 10 | 20 T. | None | | |
| Native Pasture and Meadow | 53 | Hay and pasture | None | | |
| Roads & Waste | 3 | | | | |
| Cattle | | | 1600 lbs. | 7.23¢ per lb. | 115.68 |
| Calves | | | 2400 lbs. | 8.98¢ per lb. | 215.52 |
| Hogs | | | 1900 lbs. | 10.25¢ per lb. | 194.75 |
| Poultry | | | 440 lbs. | 17.3¢ per lb. | 76.12 |
| Eggs | | | 1900 doz. | 27.3¢ per doz. | 51.87 |
| Butterfat | | | 1400 lbs. | 38¢ per lb. | 532.00 |
| Total | | | | | $2,009.43 |

| **Expenses:** | |
|---|---|
| Hired Labor | $115.00 |
| Cotton Ginning | 20.00 |
| Seed and Fertilizer | 26.00 |
| Feed Purchased | 345.00 |
| Gas and Oil | 102.00 |
| Taxes and Ins. | 105.00 |
| Machinery Repairs | 56.00 |
| Building Repairs | 40.00 |
| Auto Expense | 105.00 |
| Depreciation | |
| Buildings | 100.00 |
| Machinery | 120.00 |
| Total | $1,134.00 |

| **Summary:** | |
|---|---|
| Total Income | $2,009.43 |
| Total Expense | 1,134.00 |
| Net Cash Income | $875.43 |
| Less Unpaid Labor of Operator (Est.) | 600.00 |
| Net Return for Capital Investment | $275.43 |
| Valuation if capitalized @ 5% | |
| $275.43÷5=55.08 | |
| $55.08×100=$5,508.00 | |

[1] Average Price Received by Oklahoma Farmers, 1910-44, Agricultural Economics Department, Oklahoma A. and M. College.

## FARM LAND PRICE INFLATION

A prospective farm purchaser who under present conditions applies the capitalization method to an estimated net income of any certain farm is quite likely to arrive at a valuation under the present asking price for that farm. Caution should therefore be made that the method outlined can serve only as a rough guide or yardstick for the prospective purchaser. But if dependable information is used pertaining to cropping systems, yields, prices, and expenses, a safe estimation of the "productive value" of a farm can be made. A price asked for a farm that very greatly exceeds the "productive value" so determined should be considered carefully before making the purchase. Failure to recognize the difference between market price and long-time productive value of farm land was responsible for many of the financial difficulties of farmers in the period following World War I. Efforts should be made to prevent the recurrence of those same difficulties following World War II.

**Amount of Annual Payments Required to Repay Farm Loans on Standard Amortization Plan.**

| Amount | LENGTH OF LOAN 10 YEARS | | LENGTH OF LOAN 20 YEARS | | Length of Loan 34½ Yrs. | Length of Loan 40 Yrs. |
|---|---|---|---|---|---|---|
| | 4% | 5% | 4% | 5% | 4%* | 3% |
| $ 500 | $ 61.65 | $ 64.75 | $ 36.79 | $ 40.12 | $ 27.00 | $ 21.63 |
| 1,000 | 123.29 | 129.50 | 73.58 | 80.24 | 54.00 | 43.26 |
| 1,500 | 184.94 | 194.26 | 110.37 | 120.36 | 81.00 | 64.89 |
| 2,000 | 246.58 | 259.01 | 147.16 | 160.49 | 108.00 | 86.52 |
| 2,500 | 308.23 | 323.76 | 183.95 | 200.61 | 135.00 | 108.16 |
| 3,000 | 369.87 | 388.51 | 220.75 | 240.73 | 162.00 | 129.79 |
| 3,500 | 431.52 | 453.27 | 257.54 | 280.85 | 189.00 | 151.42 |
| 4,000 | 493.16 | 518.02 | 294.33 | 320.97 | 216.00 | 173.05 |
| 4,500 | 554.81 | 582.77 | 331.12 | 361.09 | 243.00 | 194.68 |
| 5,000 | 616.45 | 647.52 | 367.91 | 401.21 | 270.00 | 216.31 |
| 5,500 | 678.10 | 712.28 | 404.70 | 441.33 | 297.00 | 237.94 |
| 6,000 | 739.75 | 777.03 | 441.49 | 481.46 | 324.00 | 259.57 |
| 6,500 | 801.39 | 841.78 | 478.28 | 521.58 | 351.00 | 281.21 |
| 7,000 | 863.04 | 906.53 | 515.07 | 561.70 | 378.00 | 302.84 |
| 7,500 | 924.68 | 971.28 | 551.86 | 601.82 | 405.00 | 324.47 |
| 8,000 | 986.33 | 1,036.04 | 588.65 | 641.94 | 432.00 | 346.10 |

* For Standard Plan, Farm Credit Administration.

## SPRINGFIELD PLAN

The Farm Credit Administration has during the past four years used almost exclusively the Springfield Plan instead of the Standard Amortization Plan for loan repayment. This plan calls for the payment of a fixed amount on the principal of the loan plus interest each year. The amount of the annual

payment or installment therefore decreases each year. Each annual payment is decreased by the amount of interest on the last principal payment. The Springfield Plan is considered better than the Standard Plan because it reduces the principal more rapidly in the early life of the loan. This affords greater protection against foreclosure to both borrower and lender.

From the Loan Amortization Table for the Springfield Plan as given herewith, the annual installment for each year for any size loan can be calculated. This can be done by multiplying the "Total Installment" figure by the amount of the loan and

## LOAN AMORTIZATION TABLE
### SPRINGFIELD PLAN

| Rate 4% | Annual | 33 Yr. Term | Prin. $1,000.00 |
|---|---|---|---|

**AMORTIZATION TABLE**

| No. | Total Installment | Interest | Pay't on Principal | Unpaid Balance |
|---|---|---|---|---|
| 1 | 70.00 | 40.00 | 30.00 | 970.00 |
| 2 | 68.80 | 38.80 | 30.00 | 940.00 |
| 3 | 67.60 | 37.60 | 30.00 | 910.00 |
| 4 | 66.40 | 36.40 | 30.00 | 880.00 |
| 5 | 65.20 | 35.20 | 30.00 | 850.00 |
| 6 | 64.00 | 34.00 | 30.00 | 820.00 |
| 7 | 62.80 | 32.80 | 30.00 | 790.00 |
| 8 | 61.60 | 31.60 | 30.00 | 760.00 |
| 9 | 60.40 | 30.40 | 30.00 | 730.00 |
| 10 | 59.20 | 29.20 | 30.00 | 700.00 |
| 11 | 58.00 | 28.00 | 30.00 | 670.00 |
| 12 | 56.80 | 26.80 | 30.00 | 640.00 |
| 13 | 55.60 | 25.60 | 30.00 | 610.00 |
| 14 | 54.40 | 24.40 | 30.00 | 580.00 |
| 15 | 53.20 | 23.20 | 30.00 | 550.00 |
| 16 | 52.00 | 22.00 | 30.00 | 520.00 |
| 17 | 50.80 | 20.80 | 30.00 | 490.00 |
| 18 | 49.60 | 19.60 | 30.00 | 460.00 |
| 19 | 48.40 | 18.40 | 30.00 | 430.00 |
| 20 | 47.20 | 17.20 | 30.00 | 400.00 |
| 21 | 46.00 | 16.00 | 30.00 | 370.00 |
| 22 | 44.80 | 14.80 | 30.00 | 340.00 |
| 23 | 43.60 | 13.60 | 30.00 | 310.00 |
| 24 | 42.40 | 12.40 | 30.00 | 280.00 |
| 25 | 41.20 | 11.20 | 30.00 | 250.00 |
| 26 | 40.00 | 10.00 | 30.00 | 220.00 |
| 27 | 38.80 | 8.80 | 30.00 | 190.00 |
| 28 | 37.60 | 7.60 | 30.00 | 160.00 |
| 29 | 36.40 | 6.40 | 30.00 | 130.00 |
| 30 | 35.20 | 5.20 | 30.00 | 100.00 |
| 31 | 34.00 | 4.00 | 30.00 | 70.00 |
| 32 | 32.80 | 2.80 | 30.00 | 40.00 |
| 33 | 41.60 | 1.60 | 40.00 | |

pointing off three additional decimal places. For example the fifth yearly payment on a $5,000 loan would be 5,000×$65.20= $326.

## PRICES RECEIVED BY OKLAHOMA FARMERS

The table of prices received by Oklahoma farmers was prepared by the Department of Agricultural Economics, Oklahoma A. and M. College. The prices averaged are the mid-month reports of prices received by farmers as made by the U. S. D. A., B. A. E. The average prices for different periods give opportunity to compare "boom" prices, depression prices, and long-time average prices.

## PRICES RECEIVED BY OKLAHOMA FARMERS
### Averages for Selected Periods

| Commodity | Unit of Measure | 1910-14 | 1916-20 | 1921-23 | 1924-28 | 1930-34 | Dec. 1941 Mar. 1945 | 1910-1944 |
|---|---|---|---|---|---|---|---|---|
| Wheat | Dollars per Bushel | .862 | 1.89 | 1.01 | 1.24 | .579 | 1.24 | 1.28 |
| Corn | Dollars per Bushel | .650 | 1.33 | .636 | .840 | .522 | 1.07 | .97 |
| Oats | Dollars per Bushel | .447 | .704 | .421 | .501 | .310 | .672 | .57 |
| Barley | Dollars per Bushel | .598 | 1.12 | .601 | .682 | .415 | .847 | .80 |
| Rye | Dollars per Bushel | .860 | 1.48 | .794 | .954 | .529 | .907 | 1.04 |
| Grain Sorghums | Dollars per Bushel | .675 | 1.37 | .658 | .817 | .524 | .954 | .95 |
| Cotton Lint | Cents per Pound | 13.6 | 28.7 | 22.1 | 22.8 | 10.3 | 23.5 | 17.7 |
| Cottonseed | Dollars per Ton | 23.49 | 25.64 | 35.08 | 37.15 | 21.06 | 46.89 | 36.51 |
| Apples | Dollars per Bushel | 1.48 | 2.24 | 2.20 | 1.94 | 1.30 | no price | 1.69 |
| Potatoes (White) | Dollars per Bushel | 1.33 | 2.46 | 1.84 | 2.65 | 1.16 | 1.55 | 1.58 |
| Potatoes (Sweet) | Dollars per Bushel | 1.18 | 2.33 | 1.74 | 1.69 | 1.00 | 1.90 | 1.60 |
| Hay (All Loose) | Dollars per Ton | 10.58 | 16.76 | 10.80 | 12.32 | 7.80 | 10.49 | 11.05 |
| Cattle | Dollars per 100 Pounds | 5.79 | 9.31 | 5.40 | 6.97 | 4.93 | 10.23 | 7.23 |
| Calves | Dollars per 100 Pounds | 7.16 | 10.69 | 6.82 | 9.02 | 6.14 | 12.26 | 8.98 |
| Sheep | Dollars per 100 Pounds | 5.54 | 10.80 | 6.40 | 8.45 | 3.83 | 5.98 | 6.73 |
| Lambs | Dollars per 100 Pounds | 6.98 | 13.30 | 9.26 | 12.68 | 7.00 | 12.54 | 10.36 |
| Hogs | Dollars per 100 Pounds | 8.45 | 15.82 | 8.56 | 11.09 | 5.70 | 12.86 | 10.25 |
| Milk (Wholesale) | Dollars per 100 Pounds | 2.31 | 1.54 | 2.96 | 3.02 | 1.99 | 3.05 | 2.72 |
| Milk (Retail) | Cents per Quart | 9.2 | 13.6 | 13.8 | 13.2 | 10.3 | 11.9 | 11.9 |
| Butter | Cents per Pound | 27. | 46. | 41. | 47. | 30. | 45. | -- |
| Butterfat | Cents per Pound | 28. | 54. | 40. | 44. | 24. | 44. | 38. |
| Chickens | Cents per Pound | 11.3 | 21.7 | 19.8 | 21.4 | 12.8 | 20.0 | 17.3 |
| Eggs | Cents per Dozen | 21.4 | 40.1 | 29.0 | 31.0 | 17.7 | 31.5 | 27.3 |
| Horses | Dollars per Head | 53. | 53. | 72. | 56. | 50. | 58. | 84. |
| Mules | Dollars per Head | 67. | 65. | 100. | 87. | 73. | 85. | 114. |

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