No. 7600037

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Sacramento Valley Milling Company

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF seventeen YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. IN THE UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS SPECIFIED BY THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

KIDNEY BEAN

'Sacramento'

In Testimony Whereof, *I have hereunto set my hand and caused the seal of the* Plant Variety Protection Office *to be affixed at the City of* Washington *this* seventh *day of* September *in the year of our Lord one thousand nine hundred and* seventy-six

Attest:

Commissioner
Plant Variety Protection Office
Grain Division
Agricultural Marketing Service

Secretary of Agriculture

FORM GR-470
(12-15-72)

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
GRAIN DIVISION
HYATTSVILLE, MARYLAND 20782

FORM APPROVED
OMB NO. 40-R3712

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

INSTRUCTIONS: *See Reverse.*

1. VARIETY NAME OR TEMPORARY DESIGNATION	2. KIND NAME	FOR OFFICIAL USE ONLY
Sacramento	Light Red Kidney Bean	PV NUMBER 7600037
3. GENUS AND SPECIES NAME	4. FAMILY NAME *(Botanical)*	FILING DATE 2·3·76 / TIME 10:30 A.M.
Phaseolus vulgaris	Leguminosae	FEE RECEIVED $ 250 / BALANCE DUE $ —
	5. DATE OF DETERMINATION	$ 250 / $ —
	8-18-73	$ 250 / $ —

6. NAME OF APPLICANT(S)	7. ADDRESS *(Street and No. or R.F.D. No., City, State, and ZIP Code)*	8. TELEPHONE AREA CODE AND NUMBER
Sacramento Valley Milling Company	P. O. Box 68 Ordbend, California 95943	916-934-3385

9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: *(Corporation, partnership, association, etc.)*	10. STATE OF INCORPORATION	11. DATE OF INCORPORATION
Corporation	California	August 1963

12. Name and mailing address of applicant representative(s), if any, to serve in this application and receive all papers:

None

13. CHECK BOX BELOW FOR EACH ATTACHMENT SUBMITTED:

[X] 13A. Exhibit A, Origin and Breeding History of the Variety *(See Section 52 of the Plant Variety Protection Act.)*

[X] 13B. Exhibit B, Botanical Description of the Variety

[X] 13C. Exhibit C, Objective Description of the Variety

[X] 13D. Exhibit D, Data Indicative of Novelty

[X] 13E. Exhibit E, Statement of the Basis of Applicant's Ownership

14A. Does the applicant(s) specify that seed of this variety be sold by variety name only as a class of certified seed? *(See Section 83(a). (If "Yes," answer 14B and 14C below.)* [X] YES [ ] NO

14B. Does the applicant(s) specify that this variety be limited as to number of generations? [X] YES [ ] NO

14C. If "Yes," to 14B, how many generations of production beyond breeder seed? [X] FOUNDATION [X] REGISTERED [X] CERTIFIED

The applicant declares that a viable sample of basic seed of this variety will be deposited upon request before issuance of a certificate and will be replenished periodically in accordance with such regulations as may be applicable.

The undersigned applicant(s) of this sexually-reproduced novel plant variety believes that the variety is distinct, uniform, and stable as required in Section 41 and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Applicant is informed that false representation herein can jeopardize protection and result in penalties.

27 January 1976
(DATE)

Sacramento Valley Milling Co
(SIGNATURE OF APPLICANT)

By Jr K. White V.P. 00001

(DATE)

(SIGNATURE OF APPLICANT)

EXHIBIT A

Origin and Breed History of the Variety

1. 'Sacramento'Light Red Kidney is a variety resulting from a single plant selection for earliness from'California' Light Red Kidney.

2. During 1972 774 progenies from plants previously chosen for apparent earliness from production fields in the Sacramento valley were grown as single rows in a non-replicated nursery near Nord, California. Eight progenies were chosen for further evaluation and seed was harvested.

3. Three-row plots sixty feet in length of each selection were grown at Butte City, California in 1973. Progeny number 72-697 was the earliest and most uniform of the eight progenies tested, Plates 1 and 2. Approximately one percent of the 72-697 population appeared to be later maturing plants and were eliminated. Seed harvested from the remaining population was bulked.

4. Seed harvested in 1973 was planted on 0.47 acres at Glenn, California in 1974, Plate 3. General appearance, plant height, pod set at 55 days and number of days to cutting maturity were similar to 1973 nursery performance. Frequency of later maturing plants was less than one half of one percent and were removed. The block was estimated to contain about 13,000 plants. Seed produced in 1974 was designated foundation 'Sacramento' Light Red Kidney.

Uniformity of the pod development data attached for three succeeding generations, 1973 through 1975 indicates that the variety is stabilized.

EXHIBIT B

Botanical Description of the Variety

'Sacramento' Light Red Kidney is similar in general morphological characteristics to 'California' Light Red Kidney, from which it is a single plant selection.

Seed size, shape, and color are similar, as are flower and pod characteristics. However, 'Sacramento' shows a plant height advantage beginning soon after emergence and continuing through about 35 to 40 days of growth. At that stage 'Sacramento' is beginning to bloom and set pods, and height elongation slows. At 51 to 55 days of growth pod set on 'Sacramento' is well progressed and plant height is no longer increasing. 'California' at 51 to 55 days is just beginning pod set and continues to elongate over a somewhat longer period. At 51 to 55 days 'Sacramento' is shorter than 'California' and the eventual difference in plant height at maturity is 10 to 15 centimeters. The accellerated growth and development rate of 'Sacramento' result in its reaching the cutting stage of maturity 10 to 15 days earlier than 'California'.

Foliage color and general leaf shape are similar. Leaf size of 'Sacramento' is slightly smaller in both length and width. 'Sacramento' has about 1.6 less branches per main stem and a some what more upright, laterally compressed habit than 'California'.

'Sacramento' is expected to be similar to 'California' in reaction to insects and diseases in the central valleys of California.

FORM GR-470-12
(11-15-72)

FORM APPROVED. OMB NO. 40-R3712

EXHIBIT C
(Bean)

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
GRAIN DIVISION
HYATTSVILLE, MARYLAND 20782

OBJECTIVE DESCRIPTION OF VARIETY

BEAN (*PHALEOLUS VULGARIS*)

INSTRUCTIONS: *See Reverse.*

NAME OF APPLICANT(S)
Sacramento Valley Milling Company

ADDRESS *(Street and No. or R.F.D. No., City, State, and ZIP Code)*
P.O. Box 68
Ordbend, California 95943

FOR OFFICIAL USE ONLY

PVPO NUMBER
7600037 Bean (Kidney)

VARIETY NAME OR TEMPORARY DESIGNATION
'Sacramento'

Place the appropriate number that describes the varietal character of this variety in the boxes below.
Place a zero in first box (e.g. [0][8][9] or [0][9]) when number is either 99 or less or 9 or less.

1. TYPE:

[3] 1 = SNAPBEAN 2 = GREEN SHELL 3 = DRY EDIBLE 4 = MULTIPURPOSE

2. SEASON AND REGION OF ADAPTABILITY IN THE U.S.:

[2] Grows best during: 1 = SPRING 2 = SUMMER 3 = FALL 4 = WINTER

[6] Best adapted in: 1 = NORTHWEST 2 = NORTHCENTRAL 3 = NORTHEAST 4 = SOUTHEAST 5 = SOUTHWEST 6 = MOST REGIONS Where Kidney beans are commonly grown.

3. MATURITY *(Days from seeding to first harvest):*

[ ][ ] GREEN PODS [ ][ ] GREEN SHELLS [7][3] DRY SEEDS

[1][4] NO. DAYS EARLIER THAN --------- [8]
[ ][ ] NO. DAYS LATER THAN ---------- [ ]

1 = TENDERCROP 2 = KENTUCKY WONDER 3 = KINGHORN WAX
4 = WHITE KIDNEY 5 = MICHELITE 62 6 = DWARF HORTICULTURAL
7 = BUSH BLUE LAKE 8 = OTHER *(Specify)* Light Red Kidney

4. PLANT:

[4] 1 = DETERMINATE, ERECT BUSH 2 = DETERMINATE, SPRAWLING BUSH
3 = DETERMINATE, SEMIPOLE 4 = INDETERMINATE, POLE

[0][6][2] CM. HEIGHT OR LENGTH OF VINE FROM PRIMARY LEAF NODE

[0][0][4] NUMBER PRIMARY BRANCHES PER MAIN STALK

[4][5] CM. SPREAD

[1] Branching habit: 1 = COMPACT 2 = OPEN

[0][6] NUMBER INTERNODES ON MAIN STALK BETWEEN PRIMARY LEAF AND BASE OF TERMINAL INFLORESCENCE

[0][3] CM. LENGTH OF FIRST INTERNODE ABOVE PRIMARY LEAF

[0][8] MM. STALK DIAMETER ABOVE FIRST TRIFOLIATE LEAF

[1] Main stalk: 1 = BRITTLE 2 = WIREY [1] 1. STOUT 2. THIN

[3] Flower position:
[3] Pod Position:
1 = LOW, CONCENTRATED 2 = HIGH, CONCENTRATED 3 = SCATTERED

5. LEAVES:

[1] 1 = SMOOTH 2 = WRINKLED [1] 1 = DULL 2 = GLOSSY [1] Thickness: 1 = THIN 2 = MEDIUM 3 = THICK

[3] Size: 1 = SMALL *(Earliwax)* 2 = MEDIUM 3 = LARGE *(Tendercrop)*

[ ] CM. PETIOLE LENGTH *(To basal leaflets of first trifoliate leaf)*

[ ] Tip shape of center leaflet: 1 = ROUNDED 2 = TAPER POINTED 3 = SHARP POINTED Same as Light Red Kidney

[2] PUBESCENCE - Dorsal:
[ ] PUBESCENCE - Ventral:
1 = NONE 2 = SLIGHT 3 = CONSIDERABLE

[2] Color: 1 = LIGHT GREEN *(Bountiful)* 2 = MEDIUM GREEN 3 = DARK GREEN *(Bush Blue Lake)*

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10. ANTHOCYANIN: *(1 = Absent 2 = Present):*

[ ] FLOWERS [1] STEMS [2] PODS [2] SEEDS [1] LEAVES

11. DISEASE RESISTANCE *(0 = Not tested; 1 = Susceptible; 2 = Resistant):*

[0] RUST *(Specify race)* _____	[0] ANGULAR LEAF SPOT
[0] BACTERIAL WILT	[1] COMMON BEAN MOSAIC
[0] ANTHRACNOSE	[1] YELLOW BEAN MOSAIC
[0] SOUTHERN BEAN MOSAIC	[0] FUSARIUM ROOT ROT
[1] CURLY TOP	[1] N.Y. 15 BEAN MOSAIC
[0] POWDERY MILDEW	[1] BEAN MOSAIC VIRUS 4
[1] HALO BLIGHT	[0] FUSCOUS BLIGHT
[0] ALFALFA MOSAIC VIRUS	[1] ALFALFA MOSAIC VIRUS 2
[0] POD MOTTLE VIRUS	[0] RED NODE VIRUS
[0] ROOT KNOT NEMATODE	[0] OTHER *(Specify)* _____

12. INSECT RESISTANCE: *(0 = Not tested; 1 = Susceptible; 2 = Resistant)*

[0] APHIDS	[0] LEAF HOPPERS
[1] POD BORER	[1] LYGUS
[0] THRIPS	[0] WEAVILS
[0] SEED CORN MAGGOT	[ ] OTHER *(Specify)* _____

13. PHYSIOLOGICAL RESISTANCE: *(0 = Not tested; 1 = Susceptible; 2 = Resistant)*

[0] HEAT [0] COLD [0] DROUGHT [ ] OTHER *(Specify)* _____

REFERENCES: The following publications may be used as a reference in completing this form:

1. Beans of New York. Vol. 1 Part II of Vegetables of New York. U.P. Hedrick et al. J. B. Lyon Company, Albany, N.Y. 1931.
2. Yarnell, S. H., Cytogenetics of the Vegetable Crops IV. Legumes. Bot. Rev. 31:247 - 330. 1965.
3. USDA Yearbook of Agriculture. 1937.

COLOR: Nickerson's or any recognized color fan may be used to determine the colors.

EXHIBIT D

Data Indicative of Novelty

'Sacramento' Light Red Kidney most closely resembles 'California' Light Red Kidney except that (1) onset of pod development is earlier (2) mature plant height is ten to fifteen centimeters less than 'California' and (3) although similar in seed yield to 'California', 'Sacramento' reaches the cutting stage of maturity ten to fifteen days earlier than 'California'.

Plant and Pod Development

1. Comparison of 'Sacramento' Light Red Kidney and 'California' Light Red Kidney for amount of pod development at the 51 to 55 days stage of growth distinctly separates the two varieties.

2. Table 1 summarizes data gathered over a three year period. Each year represents a different location in the upper Sacramento valley - Nord 1973, Butte City 1974 and Glenn 1975. Planting dates were about mid June each year.

3. Sample plants were gathered each year from a random section of row. All plants in the selected section were pulled and classified for mean length of longest pod, mean number of pods per plant and total weight of pods per plant. The 1975 sample was classified for mean number of main stem branches per plant.

4. The means reported in Table 1 illustrate the difference in pod development which exists between 'Sacramento' and 'California' Light Red Kidney at that stage of growth. 'Sacramento' had an average three year advantage over 'California' for mean length of longest pod - 169 percent and mean number of pods per plant - 257 percent. Total pods per plant expressed as weight gave 'Sacramento' more than a 10 fold advantage.

5. Plates 4 thru 9 illustrate plant type and pod production differences. In Plate 4 plant height differences are already apparent. Plate 5 illustrates plant frame work and pod set differences with leaves removed. Plate 6 shows pods removed from the 6 plants in Plates 4 and 5. Plates 4 through 6 are from the 1975 nursery.

6. Plants in Plates 7, 8 and 9 are from the 1974 nursery. Plates 7 and 8 compare overall plant height and pod set between 'Sacramento' LRK and 'California' LRK. Plate 9 illustrates the gross difference in pod production observed and reported in Table 1.

Seed Yield Trial Summary

1. Seed yields observed during nursery and seed increase operations indicated that in spite of the earliness and slightly smaller plant size, the variety 'Sacramento' appeared at or near normal in seed production potential.

2. Three replicated trials were placed in the Sacramento Valley during 1975 to compare the yield of 'Sacramento' Light Red Kidney with the standard 'California' Light Red Kidney.

3. Test locations were Gerber in Tehama County, Glenn in Glenn County and Williams in Colusa County. Corresponding planting dates were 19 May, 24 June and 17 July. All tests contained four replicates, were seeded with the same equipment that planted the surrounding fields, and received the same cultural operations as the fields through-out the growing season, except that plots were pulled by hand and threshed through a modified C. B. Hays plot thresher.

4. Table 2 contains the information pertinent to the tests. Table 3 contains the individual analyses of variance tables for each test.

5. The yield of 'Sacramento' ranged from two percent more than 'California' at Gerber and Glenn to six percent less at Williams. Coefficients of variation were small, indicating good test accuracy and no significant differences were indicated in spite of the wide spread in geographic locations and planting dates. Plot yields were similar to the production of the surrounding fields.

6. Although both varieties required more days to maturity at the later planting dates, the basic ten to fifteen day difference in maturity being claimed for 'Sacramento' Light Red Kidney was maintained.

7. Plates 10, 11 and 12 illustrate the distinct earliness advantage for 'Sacramento' Light Red Kidney.

Table 1

Comparative pod development at the 51-55 day stage of growth for 'Sacramento' Light Red Kidney and 'California' Light Red Kidney under field conditions for the years 1973, 1974 and 1975. Data for 'Sacramento' Light Red Kidney are from samples of succeeding seed generations.

	Sacramento LRK				California LRK			
	73	74	75	Mean	73	74	75	Mean
Days of Growth	51	55	54		51	55	54	
Plants in Sample	17	19	30		17	20	30	
Mean Length of Longest Pod in Cm	11.0	14.8	13.8	13.2	6.6	7.6	9.3	7.8
Mean Number of Pods per Plant 2.54 Cm or longer	24.5	21.8	23.9	23.4	8.4	8.1	10.8	9.1
Mean Total Weight of Pods per Plant 2.54 Cm or Longer in Grams	35.6	75.4	70.6	60.5	5.5	4.8	6.8	5.7
Mean Number of Branches per Main Stem			3.2				4.8	

RECEIVED
FEB 3 1976
PVPO

INSTRUCTIONS

GENERAL: Send an original copy of the application, exhibits and $250.00 fee to U.S. Dept. of Agriculture, Agricultural Marketing Service, Grain Division, 6525 Belcrest Road, Hyattsville, Maryland 20782. (See Section 180.175 of the regulations and rules of practice.) Retain one copy for your files. All items on the face of the form are self-explanatory unless noted below.

ITEM

5 Insert the date the applicant determined that he had a new variety based on the definition in Section 41 (a) of the Act and decision is made to increase the seed.

13a First, give the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method. Second, give the details of subsequent stages of selection and multiplication. Third, indicate the type and frequency of variants during reproduction and multiplication and state how these variants may be identified. Fourth, provide evidence on stability.

13b First, give any special characteristics of the seed and of the plant as it passes through the seedling stage, flowering stage and the fruiting stage. Second, describe the mature plant and compare it with a similar commercial variety grown under the same conditions, and indicate the differences.

13c A supplemental form will be furnished by the PVPO to describe in detail a variety for each kind of seed.

13d Provide complete data indicative of novelty. Seed and plant specimens or photographs of seed and plant comparisons clearly indicating novelty may be submitted. Seeds submitted may be sterile.

13e Indicate whether applicant is the actual breeder, the employer of the breeder, the owner through purchase or inheritance, etc.

6. FLOWERS:

[3] Color: 1 = WHITE 2 = CREAM 3 = PINK 4 = LILAC 5 = PURPLE
6 = OTHER *(Specify)*_____

[3] Racemes: 1 = LONG 2 = MEDIUM 3 = SHORT [ ] NUMBER FLOWERS PER RACEME

7. FRESH PODS: ***(Edible maturity, averages for 10 pods)***

[2] Color: 1 = LIGHT GREEN *(Bountiful)* 2 = MEDIUM GREEN *(Tendergreen)* 3 = DARK GREEN *(Wade)*
4 = LIGHT YELLOW *(Brittlewax)* 5 = GOLDEN YELLOW *(Cherokee Wax)* 6 = GREEN-RED VARIAGATED *(Horticultural)*
7 = OTHER *(Specify)* _____

[ ] CM. LENGTH [ ] MM. WIDTH *(Between sutures)* [ ] MM. THICKNESS [ ] WIDTH / THICKNESS X 10

[2] Cross section pod shape: 1 = FLAT 2 = OVAL 3 = CREASEBACK 4 = ROUND

[2] Curvature: 1 = STRAIGHT 2 = SLIGHTLY CURVED 3 = CURVED

[ ] Pubescence: 1 = NONE 2 = SPARSE 3 = CONSIDERABLE

[2] Constrictions: 1 = NONE 2 = SLIGHT 3 = DEEP

[ ] Spur: 1 = STRAIGHT 2 = SLIGHTLY CURVED 3 = CURVED

[2] Surface: 1 = SHINY 2 = DULL

[1] Surface: 1 = SMOOTH 2 = BLISTERED

[ ] Pod flesh: 1 = LIGHT 2 = DARK

[ ] Pod flesh: 1 = FIRM 2 = WATERY

[ ] MM. SPUR LENGTH

[1] Suture string: 1 = PRESENT 2 = ABSENT

[3] Fiber: 1 = NONE 2 = SPARSE 3 = CONSIDERABLE

[3] Seed development: 1 = SLOW 2 = MEDIUM 3 = FAST

[ ] NUMBER OF SEEDS PER POD

[ ] NUMBER PODS PER PLANT *(Once over harvest)*

[ ] NUMBER MARKETABLE PODS PER PLANT *(Once over harvest)*

[2] Machine harvest: 1 = ADAPTED 2 = NOT ADAPTED

8. SEED COAT COLOR:

[1] 1 = MONOCHROME 2 = POLYCHROME

[1] 1 = SHINY 2 = DULL

[6] Primary color:
[/] Secondary color:
1 = WHITE 2 = YELLOW 3 = BUFF 4 = TAN
5 = BROWN 6 = PINK 7 = RED 8 = PURPLE
9 = BLUE 10 = BLACK 11 = OTHER *(Specify)*_____

[/] Color pattern: 1 = SPLASHED 2 = MOTTLED 3 = STRIPED 4 = FLECKED 5 = DOTTED

[/] Secondary color location:
1 = HILAR RING 2 = HILAR SURFACE
3 = STROPHIOLE 4 = MICROPYLE
5 = SIDES 6 = DORSAL SURFACE
7 = NOT RESTRICTED TO ANY AREA 8 = COMBINATION OF LOCATIONS *(Specify)*_____

[1] Hilar ring: 1 = NOT PRESENT 2 = NARROW 3 = BUTTERFLY SHAPED

[1] Vein-like under coat pattern: 1 = ABSENT 2 = PRESENT

9. SEED SHAPE AND SIZE:

[1] Hilum view: 1 = ELLIPTICAL 2 = OVAL 3 = ROUND

[3] Side view: 1 = OVAL 2 = ROUND 3 = KIDNEY 4 = TRUNCATE ENDS

[2] Cross section: 1 = ELLIPTICAL 2 = OVAL 3 = CORDATE 4 = ROUND

[50] GM. WEIGHT PER 100 SEEDS

[4] Classification: 1 = PEA 2 = MEDIUM 3 = MARROW 4 = KIDNEY 5 = PINTO

[0 8] MM. WIDTH *(Dorsal to ventral)*

[0 6] MM. THICKNESS *(Side to side)*

[1 6] MM. LENGTH

[0 1 4] WIDTH / THICKNESS X 10

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