

THE KENTUCKY AGRICULTURAL EXPERIMENT STATION  
AND  
UNITED STATES DEPARTMENT OF AGRICULTURE  
SOIL CONSERVATION SERVICE

NOTICE OF RELEASE OF APPALOW SERICEA LESPEDEZA

The Kentucky Agricultural Experiment Station and the Soil Conservation Service announce the joint release of 'Appalow' a prostrate cultivar of sericea lespedeza, Lespedeza cuneata (Dumont) G. Don.

The new cultivar is a seed increase of Nasu 10 from Japan. It was accessioned as BN-10406 in 1959 at the National Plant Materials Center, SCS, Beltsville, MD. Seed was first received at the Quicksand FMC, Quicksand, KY. in 1967, and was tested as KY-520. Under the direction of the SCS, Appalow was tested mainly as a ground cover and soil conserving plant to be used in establishing a permanent protective cover on critical soil areas. Its extreme range of adaptation has not been determined, but it performed satisfactorily in at least a dozen of the states in which sericea is presently used. The decision for naming and release was based on its performance on roadbanks and acid mine spoils. The name Appalow combines a part of the name of the Appalachian Region where KY-520 was tested, with the last part of the name indicating the low-growth characteristic.

Appalow is the only prostrate sericea cultivar available. Its decumbent stems are ~~1.5-45~~ more than 1.5-45 cm off the ground. Individual plants may cover an area 75 by 25 cm. Stems are numerous, small in diameter, and relatively short. Leaflets tend to be small, very numerous, and dark green. Early spring growth, blooming periods, and seed maturity are similar to other sericeas. Rate of establishment and early recovery after mowing are also similar, but once Appalow reaches 10-20 cm, growth is mainly horizontal while other sericeas grow to over a meter tall. The low profile is ideal for a low-maintenance plant. Even without mowing, the plant maintains a neat appearance. The dense low growth affords maximum protection of the soil from the beating action of rain and helps to maintain soil stability. Growth has also been found to be satisfactory with several warm and cool season grass species. There have been no special problems with insects or diseases.

Appalow is a good producer of seed. Seed increase is on a three-generation basis, with one generation each of breeder, foundation, and certified seed classes. Certified seed may be grown only from breeder or foundation seed. Breeder seed will be maintained by the Soil Conservation Service, Plant Materials Center, Quicksand, KY. The Kentucky Foundation Seed Project will produce and distribute foundation seed. The first certified seed should be available in limited amounts by the fall of 1981. The release date for Appalow is February 1, 1981.

APPROVED BY:

*Glenn O. McCreary*  
State Conservationist, U. S. Department of Agriculture  
Soil Conservation Service, Lexington, Kentucky

4/26/78  
Date

*Sheldon E. Bamhart*  
Director, Kentucky Agricultural Experiment Station  
University of Kentucky, Lexington, Kentucky

3/29/78  
Date

*James W. Shift*  
Director, Ecological Sciences and Technology Division  
U. S. Department of Agriculture, Soil Conservation Service

5-2-78  
Date

PROPOSAL FOR JOINT RELEASE OF  
A SERICEA LESPEDEZA VARIETY

It is requested that KY-520 strain of sericea lespedeza, Lespedeza cuneata (Dumont) G Don., be considered for joint release by the Kentucky Agricultural Experiment Station and the Soil Conservation Service, USDA, as a ground cover, soil-conserving plant. Botanical description of the species and of the strain are given below, along with pertinent information on growth and performance.

I. DESCRIPTION OF THE SPECIES:

Sericea lespedeza is a perennial warm-season legume. Spring re-growth starts in April from crown buds. Most forms of sericea have several erect or strongly ascending stems 0.8 to 1.5 m tall. Stems are shrubby, with numerous twiggy branches. Leaflets of the trifoliolate leaves are usually broadest at the squarecut tip, smooth above and silky below, ascending or erect, wedgeshaped, 10-25 mm long and 2-10 mm wide. Blooming usually starts about the middle of August with maturity before the middle of October. Flowers are of two kinds, some with and some without corolla, mostly solitary but also in clusters of 2-4, in upper axils, white marked with purple or pink, 7-9 mm long. Fruits are one seeded, made up of pod, calyx, and 3 scalelike bracts. Pods are oval, 3-5 mm long and 1.5-2 mm wide, and dark reddish brown. Seeds are light green, flecked with purple, or yellowish flecked with brown, 2-2.5 mm long and 1.5 mm wide, with about 777,000 per kg. (Alfalfa has about 440,000 and red clover about 600,000 seeds per kg.)

II. DESCRIPTION OF KY-520 STRAIN:

KY-520 has prostrate to slightly-ascending stems which seldom are more than 20-30 cm off the ground. An individual plant may cover an area 75 by 75 cm. Leaflets tend to be smaller and darker green than other sericeas. Stems are more numerous, smaller in diameter and shorter. Start of early spring growth of KY-520, its blooming period and seed maturity are similar to other sericeas, as are flowers, pods, and seeds.

III. ORIGIN OF KY-520 STRAIN:

This strain was received by Mr. B. Blakely, Agronomist (Retired) of the USDA, Soil Conservation Service, Washington, D.C., from Nischinasuno, Japan. Identified as Nasu 10, the seed was accessioned on May 6, 1959, as BN-10406. Evaluated in rod rows at Beltsville from May 18, 1959 to October 24, 1961, it was found to be the lowest growing form of ten strains and was put in seed increase plots in 1962. Some upright, off-type plants were rogued.

The strain was received at the Quicksand Plant Materials Center, Quicksand, Kentucky, in 1967 and given number KY-520. A seed increase block was established in 1969, and enlarged in 1972, 1975, and 1976, to a total of 4.86 acres. The strain was tested as NY-1872 in New York, AM-3303 in Georgia, and MS-119 in Mississippi.

#### IV. PERFORMANCE 33 KY-520

##### 1. Observational Plantings:

Dozens of plantings were made on roadbanks and mine spoil areas. Reports have been received from 22 such seedings in 18 counties in Tennessee, 24 in 12 counties in Kentucky, with additional reports from North and South Carolina, Virginia, West Virginia, and other states. KY-520 was compared to unnamed sericeas, as well as the cultivars 'Interstate' and 'Serala'. Comparisons were also made with other legumes such as crownvetch and flatpea. On steep slopes, mulches or some temporary plant cover, such as small grains or ryegrasses, will be needed until the sericea forms a cover. Good permanent stands were found after two or three years. KY-520 was found to be hardy and stayed in stands as well or better than other sericeas on acid spoil bank areas, as shown in Table 1.

Table 1: Age of stands, ground cover, and height of KY-520 and common sericea on three spoil bank areas.

County	Age of Stand (Yrs)	Estimated Ground Cover		Height	
		KY-520 (%)	Common (%)	KY-520 (inches)	Common (inches)
Clinton Co.	4	93	97	16	56
Laurel Co.	5	97	98	18	48
Knott Co.	6	97	88	14	39

##### 2. Rate of Growth and Compatibility with Grasses:

Although KY-520 is low growing, its rate of growth after mowing is very similar to taller sericeas for several weeks. In Table 2, it can be seen that KY-520 grew as fast as 'Interstate' for a period of 30 days. The low growth might be more susceptible to the invasion of weeds but, as shown in Table 2, the ratio between different grasses and legumes is similar. The weeds have not come into KY-520 any more than into 'Interstate', a taller growing sericea.

Table 2: Regrowth rates and botanical composition of two sericeas grown with several grasses.

Companion Grass	Inches of Regrowth <sup>1/</sup>				Botanical Composition <sup>2/</sup>					
	30 Days		60 Days		KY-520			INTER		
	KY-520	Inter-state	KY-520	Inter-state	Grass	520	Other	Grass	state	Other
	(In.)	(In.)	(In.)	(In.)	%	%	%	%	%	%
Tall fescue	7	4	4	18	50	50	0	60	40	0
Orchardgrass	6	6	6	20	40	60	0	40	60	0
Reed canarygrass	5	5	5	20	30	50	20	40	40	20
Timothy	4	6	6	24	40	60	0	50	50	0
Switchgrass	6	6	6	20	30	50	20	30	40	30
Big bluestem	5	6	6	20	30	50	20	20	50	30
Indiangrass	6	6	6	23	50	40	10	50	50	0
Caucasian bluestem	5	5	5	24	50	50	0	40	60	0
Means	5.5	5.5	5.5	22	40	51	9	40	50	10

<sup>1/</sup> On July 1, 1976, plots were cut to 5-inch stubble.

<sup>2/</sup> Visual estimate of botanical composition made in 3rd year of stand grown at the Quicksand Plant Materials Center.

3. Establishment and Growth on Mine Spoil Area

On very acid sites with low fertility, establishment of a ground cover is very difficult without lime and some fertilizer. KY-520 has been tested under different levels of fertility and lime and compared to 'Interstate' sericea, flatpea, and crownvetch. Under no treatment, 'Interstate' was best, but KY-520 did as well or better than the other legumes. With minimal lime and fertilizer, all did well. See Table 3.

Table 3: Ground cover and growth, vigor ratings of different ground cover plants on an acid clay mine spoil, with different lime and fertilizer treatments. 1/

Treatments	Ground Cover Rating <sup>2/</sup>					Growth Vigor Rating <sup>2/</sup>				
	HT	H	MT	M	CK	HT	H	MT	M	CK
<u>Sept. 1973</u>										
KY-520	7	4	5	4	10	6	2	3	2	10
'Interstate'	7	4	8	4	9	9	3	4	3	9
Flatpea	5	6	6	6	10	3	4	5	5	10
Crownvetch	8	8	6	7	10	6	6	4	3	10
<u>June 1975</u>										
KY-520	2	2	1	1	10	2	2	1	1	10
'Interstate'	2	2	2	1	2	2	2	2	1	2
Flatpea	1	1	1	1	10	1	1	1	1	10
Crownvetch	2	2	2	2	10	2	2	2	2	10

1/ HT = 50#N 7/7/72; 300# A 10-10-10 7/30/73  
 H = 75-150-150#/A and 8 T/A lime in 1972  
 MT = 300#/A of 10-10-10 7/30/73  
 M = 75-100 - 100#/A and 4 T/A lime in 1972  
 CK = Check with no lime or fertilizer added.

2/ Ratings: 1 = best 10 = failure.

4. Need for Seed Scarification:

It is well known that all sericeas have a high content of hard seed, and scarification is needed for spring seedings. Late fall and winter seedings should not be scarified. KY-520 has been found to have a lower hard seed content than other sericeas, but it would require scarification. See Table 4.

Table 4: Pure seed, germination percentage, and hard seed content of 'Interstate', sericea and KY-520.

Lot No.	Date of Test	Pure Seed %	Germ. %	Hard Seed %
<u>'Interstate' sericea</u>				
1	3/22/73	99.81	25.5	66.5
2	1/11/74	98.60	14.0	76.0
3	12/27/75	99.33	10.0	84.0
4	12/7/76	96.38	31.0	44.0
<u>KY-520 sericea</u>				
1	3/21/73	99.12	47.5	43.5
2	1/11/74	95.26	47.0	41.0
3	12/27/75	98.70	38.0	55.0
4	12/7/76	92.96	64.0	23.0

5. Seed Production:

Because of the prostrate growth, seed is hard to harvest. At Quicksand, yields of 44, 55, 33, 129, and 53 pounds per acre, planted in 42" rows, were obtained in the years 1972 through 1976. In 1974, there was much frost damage. Seed yields from solid stands at Coffeerville, Mississippi, were 464#/A in 1967, and 224#/A in 1968. Other yields from rod rows and small plots showed "adjusted" yields of 296 and 816#/A.

6. Yield and Chemical Composition:

Early spring growth of sericea comes from crown buds near the ground level. Regrowth in the summer comes from buds on lower stems. When mowed, sericeas should be cut high to favor bud formation on the lower stems. On July 2, 1976, at Quicksand, several sericeas established in 1973 were harvested, leaving a 5-inch stubble. KY-520 was similar to others except in yield. See Table 5.

Table 5: Yield and chemical composition of perennial lespedezas from one cutting made July 2, 1976.

Var. or Strain	Oven Dry Wt. kg/ha.	% Crude Protein	Percent					
			DMP	P	K	Ca	Mg	Tannin
'Interstate'	4167	12.7	28.2	.19	1.18	.74	.07	7.11
'Caricea'	4077	13.7	28.2	.20	1.17	.81	.09	5.67
'Arlington'	4018	13.5	29.3	.20	1.27	.83	.07	5.88
'Serala'	3800	13.2	29.4	.20	1.20	.84	.07	6.02
KY-520	2091	14.7	29.6	.22	1.20	.82	.05	6.22

V. SUGGESTED OR POTENTIAL USES AS GROUND COVER OR SOIL-CONSERVING PLANT:

The decision to release KY-520 was based mainly on its adaptation to use on critical soil areas. It is meant for use on roadbanks, logging roads, cutover areas, gravel pits, utility rights-of-ways, surface-mine areas, and burrow pits. Especially on slopes too steep or too eroded to be cultivated, KY-520 provides good cover and stabilization for erosion control. KY-520 is also soil improving because of its many fine stems and leaves. The leaves that drop during the growing season and after frost, plus the prostrate habit of the stems, make an excellent mulch. A grass such as tall fescue would need to be included if KY-520 is to be used for waterways or outlets.

Erosion is often severe along field borders when they are kept clean cultivated, used for roadways, or for turn strips. KY-520 provides erosion control for these sites, plus providing a good wildlife habitat. For roadbanks, KY-520 is especially good. Its prostrate growth will practically eliminate mowing. Since sericea can be seeded at any time of the year, newly constructed road cuts can be seeded as soon as construction is finished. Scarified seed would be used in late winter and spring. In late summer and through the winter, unscarified seed would be used. Planting rates of 40-50 pounds/ac are suggested on most critical-area sites.

VI. NAMED CULTIVARS AVAILABLE:

'Arlington' was the first improved sericea cultivar developed by the USDA at Arlington, Virginia. There was no official date of release. 'Serala' was developed by the Alabama station and released in 1962, followed by 'Interstate' in 1971. 'Caricea' was recently released by North Carolina.

VII. SUGGESTED CULTIVAR NAME:

The name Appalow has been suggested. This name combines a part of the name of the Appalachian region, where KY-520 has been found to be well adapted, with the last part of the name indicating the low characteristic growth.

VIII. SEED INCREASE:

KY-520 is a good producer of seed, but there are harvesting problems due to its low-growth habit. For best harvest results, seed should be planted on a prepared seedbed at 12-15#/ac broadcast, in early spring, 2-3 weeks before normal corn-planting time. Seed increase is on a three generation basis, with one generation each of breeder, foundation, and certified seed classes. Certified seed may be grown only from breeder or foundation seed. Breeder seed will be

maintained by the Soil Conservation Service. The Kentucky Foundation Seed Project will produce and distribute foundation seed, which should be available in limited amounts to the Kentucky Underwriters in the spring of 1980. Foundation seed will be available to the public in 1981, and limited supplies of certified seed the same year. Date of release of public information will be February 1, 1981.

file  
Sericea file  
Lespedeza

UNITED STATES DEPARTMENT OF AGRICULTURE  
SOIL CONSERVATION SERVICE

PLANT MATERIALS CENTER  
QUICKSAND, KENTUCKY 41363

KY-520 SERICEA LESPEDEZA  
Lespedeza cuneata (Dumont) G. Don

OFUGIN

This introduction was received from Japan by Mr. B. Blakely, Agronomist (Ret.) of the USDA, Soil Conservation Service, Washington, D.C. as

Nassau 10, from Nischinasuno-TochiPereftura. He sent the seed to the National Plant Materials Center, Beltsville, Maryland, on 5/6/59 where it was accessioned BN-10406. (~~See Exhibit A.~~)

BN-10406 was evaluated in rod rows at Beltsville, Maryland, from 5/18/59 to 10/24/61. Seed was harvested from these plantings and a seed increase plot was established in 1962. Some upright, off-type, plants were rogued-out of the seed increase block.

BN-10406 was the lowest growing of 10 Nassau lines grown in Georgia. (~~See Exhibit B.~~) Based on the performance of BN-10406 a small increase plot was established at the Coffeerville PMC in 1965. (~~See Exhibit C.~~) Seed from this planting was harvested for three years and used for field testing.

The Quicksand PMC received BN-10406 in 1967 and assigned it accession number KY-520. (~~See Exhibit D.~~) A seed increase block was established at Quicksand in 1969. This was enlarged in 1972 and 1975, making a total of 4.36 acres. In 1976 a one-half acre block was established in another location at the PMC. Tall, off-type, plants were removed from the seed increase block from time to time.

DESCRIPTION

KY-520 has prostrate and decumbent stems whereas common sericea lespedezas have upright stems. Height at maturity is 8- to 10-inches. An individual plant may cover an area of approximately 30 x 30 inches. Leaflets of the trifoliolate leaves are usually broadest at the square cut tip and are usually shorter than common sericea. Upper leaf surface is nearly glabrous, while the underside of the leaf is finely pubescent presenting a grayish tinge. Leaflets and stems are more numerous, usually slightly shorter, and smaller in size than common sericea. Seed is typical of the species as

described in USDA Agriculture Handbook No. 30, page 244. Leaves of KY-520 are darker green in color as compared to the lighter green leaf color of common sericea.

When grown without a grass companion almost all stems will be prostrate. The prostrate and decumbent stems provide more ground cover per plant than common sericea. (~~See Exhibit E~~)

Flowering and pollination are similar to common sericea lespedeza. Solitary petaliferous flowers are white to greenish buff with purple veins and usually cross pollinate. Solitary apetalous flowers are greenish in color and always self-pollinate. Seed counts show that there are 820 seeds per gram and about 372,000 seeds per pound (clean hulled seed), (~~See Exhibit F~~) Hulled seeds are greenish to light greenish brown, often flecked with purple.

Blooming begins in August and usually ends about September 20 at Quicksand. Seeds are ripe in early October and are harvested near the date of the first killing frost. Approximately 1 percent of the plants are upright.

Spring growth begins in April and ceases in the fall with the date of the first killing frost.

#### AREA OF ADAPTATION

This prostrate sericea has similar adaptation to common sericea, lespedeza, but has not been tested in Florida to date. The Appalachian region of the United States is the most extensive area where the plant has been grown and tested. The following states show its major range of adaptation: Alabama, Arkansas, Georgia, Indiana, Illinois, Kentucky, Louisiana, Maryland, Mississippi, New Jersey, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, Virginia, and West Virginia. (~~See Exhibit G~~)

Seeding Rate: Seed 35-45 pounds per acre of clean, hulled, scarified seed on most critical area sites.

Seeding Date: Similar to common sericea lespedeza.

Seed Yield Data: Seed production has been from 42" rows at the Quicksand Plant Materials Center. Due to flooding and weed competition seed yields have varied. Seed yield at the Mississippi Plant Materials Center when planted in solid stand, showed yields higher. (~~See Exhibit H1~~)

Seed Analysis Test: Test of prostrate sericea as compared to common sericea has been equal to common sericea. Germination has been much higher than common. The percent of hard seed has been noticeably lower for prostrate sericea than common sericea.

i ; ~~---~~  
A-7