Evaluation and Selection of Superior *Buddleia* taxa for Georgia Nurseries and Gardens

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Buddleia davidii, as well as other *Buddleia* species, are attractive shrubs grown throughout the United States for their large fragrant flower panicles and their ability to attract colorful butterflies and bees to a garden. *Buddleia* taxa have experienced a surge in popularity as consumers increasingly demand shrubs which are desirable not only for their flower and growth habit, but also because of the colorful and interesting fauna which they attract to a garden setting. The most damaging cultural problem associated with producing *Buddleia* taxa is the two-spotted spider mite. This mite frequently reaches debilitating populations on foliage leading to plants which are expensive to produce because of the need for pesticides. Heavy mite populations also result in damage which is aesthetically displeasing and thus reduces the value of the plant. During 1997 over fifty *Buddleia* taxa were investigated for their aesthetic qualities and two-spotted spider mite resistance using laboratory and field trials.

On September 23, 1997, at the University of Georgia Horticulture Farm, 126 people evaluated a plot containing 57 *Buddleia* taxa and were requested to select the five *Buddleia* taxa, in no particular order, which they felt were the most aesthetically pleasing. Results are presented in Table 1. The taxa which were most frequently noted as aesthetically appealing have been described and their merits and drawbacks in a garden setting discussed (Table 2).

Laboratory bioassays investigating the resistance of *Buddleia* taxa to the two-spotted spider mite were conducted by placing five female mites into a small glass vial (1" by 2"), and covering the mouth of the vial with the underside of a *Buddleia* leaf. The vial was then closed with a specially widened snap-on plastic top which covered both the leaf and the glass vial. After four days, the number of eggs laid by the spider mites were counted and averages were calculated to differentiate mite resistance among species. Results divided *Buddleia* into groups of more and less resistance (Table 3) indicating which *Buddleia* would be less susceptible to infestation by spider mites. The same *Buddleia* examined in the laboratory, and two others, were examined in the field by sampling spider mite numbers on *Buddleia* foliage over the course of the summer of 1997. Average numbers of spider mites on foliage (Table 3) indicated that the same plants which showed resistance using the laboratory bioassay also showed resistance in the field. Investigations into the mechanism of two-spotted spider mite resistance in *Buddleia* indicated that pubescence is a major factor in the ability of spider mites to successfully invade a plant. More pubescent taxa resist infestations by the two-spotted spider mite better than the less pubescent taxa. Thus, pubescent taxa such as *Buddleia fallowiana* 'Alba' will have a greater ability to fend off mite invaders than more glabrous taxa such as *Buddleia lindleyana* 'Gloster'.

Continuing studies on *Buddleia* taxa at the University of Georgia and the Center for Applied Nursery Research in Dearing Georgia are concerned with increasing the variability of the taxa which are available to nurseries. Seedling populations from the best garden taxa are being grown and evaluated for flower color, foliage pubescence, and growth habit. It is hoped that new cultivars can be identified from these populations which will provide the nursery industry and consumer with enhanced aesthetic traits and mite resistance.

Table 1: *Buddleia* Evaluation Survey taken 9-23-97

Ranking	Plant	Votes (126 possible)
1	*B.* × 'Honeycomb'	106
2	*B. fallowiana* 'Alba'	62
3	*B. davidii* 'Moonshadow'	48
4	*B. davidii* 'Nanho Purple'	43
5	*B.* × 'Cornwall Blue'	32
6	*B. davidii* 'White Bouquet'	31
7	*B. davidii* 'Summer Beauty'	28
8	*B. crispa*	27
9	*B. davidii* 'Royal Red'	24
10	*B. davidii* 'Purple Prince' ('Royal Red')[z]	24
11	*B. davidii* 'Summer Rose'	23
12	*B. davidii* 'Potter's Purple'	20
13	*B. davidii* 'Peace'	16
14	*B.* × 'Lochinch'	14
15	*B. davidii* 'Dubonnet'	13
16	*B. lindleyana* 'Miss Vicie'	12
17	*B. davidii* 'Nanho White'	11
18	*B. davidii* 'Fortune'	11
19	*B. davidii* 'Moonlight'	10
20	*B. davidii* 'Bonnie'	9
21	*B. davidii* 'Miss Ellen'	9
22	*B. davidii* 'Burgundy' ('Royal Red')	6
23	*B. lindleyana* 'Gloster'	5
24	*B. davidii* 'African Queen'	5
25	*B. japonica*	4
26	*B. davidii* 'Mary's White' (Received as *B. yunnanensis* 'Alba')	4
27	*B. salvifolia*	3
28	*B. loricata*	3
29	*B. davidii* 'Pink Delight'	3
30	*B. davidii* 'Border Beauty'	3
31	*B. asiatica*	3
32	*B. davidii* 'Black Knight'	2
33	*B. hemsleyana*	2
34	*B. davidii* 'Ile de France'	2
35	*B. davidii* 'Deep Lavender'	2
36	*B. davidii* 'Charming'	1
37	*B. davidii* var. *nanhoensis* 'Dwarf Plum'	1
38	*B. davidii* var. *nanhoensis* 'Petite Indigo'	1
39	*B. indica*	1
40	*B. lindleyana* [Forest Farm][y]	1
41	*B. lindleyana* [Plants Delights]	1
42	*B. lindleyana* [Unknown]	1

[z] Cultivar names followed by a name in parenthesis indicates that these plants appear to be synonymous. The name in parenthesis should be considered to be the correct name.

[y] Names in brackets indicate the source of a particular plant.

Table 2: Evaluation of the ten most highly rated *Buddleia* taxa from Table 1

B. × *weyeriana* 'Honeycomb' (106)

This is, like all yellow flowered *Buddleia* types, a cross between *Buddleia davidii* and *B. globosa*. This is the best yellow flowered *Buddleia*. Other yellow flowered *Buddleia* such as 'Sungold' and 'Moonlight' have purple flower buds which decrease the effectiveness of the yellow blooms. Not so with 'Honeycomb'; flowers are a rich, deep shade of yellow and buds are a cream yellow. Flowering continues into fall with some blooms opening as late as December with proper dead-heading. Form is similar to the other yellows, high and mounded, but foliage color is a richer green. Spider mite resistance has not been tested on this taxon, but pubescence is not heavy and so resistance would probably be only fair.

Size (June / October 1997):	26" × 35" / 69" × 69"
Current form:	low mounded-high mounded
Flower color:	rich yellow
Average inflorescence length:	6" (estimated)

B. fallowiana 'Alba' (62)

A taxon new to our area; the greatest asset of this plant is its beautiful pubescent foliage. The silvery pubescence is both attractive and functional for it provides a defensive barrier against two-spotted spider mites. This shrub is white flowered. Flowers are very similar to those of *Buddleia davidii*, having similar form, but are somewhat less showy. Form has been low mounded thus far, and if it continues to be so then this plant will be a wonderful alternative to *Buddleia davidii*.

Size (June / October 1997):	54" × 59" / 54" × 65"
Current form:	low mounded
Flower color:	white
Average inflorescence length:	9.6"

B. davidii 'Moonshadow' (48)

An introduction which we received from Nurseries Caroliniana, North Augusta, SC., this has the most attractive light lavender flowers in our collection. Growth habit and spider mite resistance are not currently known as this plant has been in the plots for less than a year. Indications are, however, that this plant will be high mounded.

Size (June / October 1997):	36" × 38" / 42" × 40"
Current form:	low open
Flower color:	light lavender
Average inflorescence length:	9" (estimated)

***B. davidii* var. *nanhoensis* 'Nanho Purple' (43)**

Buddleia davidii var. *nanhoensis* types are valued because of their low growing habit. Thus far, in our plots, this is the only *Buddleia* type which appears to be truly low and mounded. Approximately 4' by 4', after two years, if this plant continues to hold its low mounded form it will certainly increase in popularity. Flowers are a rich purple and deadheading is required, even more so than in other *Buddleia*, to keep flowers on this shrub through late summer.

Size (June / October 1997):	39" × 43" / 44" × 54"
Current form:	low mounded
Flower color:	rich purple
Average inflorescence length:	6.0"

***B.* × 'Cornwall Blue' (32; 46 including all synonymous plants)**

A cross between *B. fallowiana* and *B. davidii*, this shrub is the same as 'Lochinch'. Its silver foliage is less prominent than that of *B. fallowiana* 'Alba', but the flowers are a lovely pastel blue with a hint of purple, and are quite different from the flower color of any *Buddleia davidii* type. Spider mite resistance is excellent.

Size (June / October 1997):	69" × 59" / 76" × 74"
Current form:	low mounded-high mounded
Flower color:	pastel light blue
Average inflorescence length:	6.0"

***B. davidii* 'White Bouquet' (31)**

One of the best white flowered *Buddleia davidii* cultivars, this shrub has extremely wide panicles of pure white flowers. Form is not known since this shrub has been planted for less than a year, but it is expected that it will be high mounded.

Size (June / October 1997):	26" × 23" / 33" × 36"
Current form:	low mounded
Flower color:	white
Average inflorescence length:	14" (estimated)

***B. davidii* 'Summer Beauty' (28)**

Fast becoming one of the most popular in Georgia nurseries, this plant has rose flowers which are quite original among *Buddleia davidii* types. Currently this shrub is low mounded,

however, it is expected that this shrub will become high mounded over time. Spider mite resistance appears to be average for *Buddleia davidii* cultivars.

Size (June / October 1997):	59" × 55" / 59" × 55"
Current form:	low mounded
Flower color:	rose
Average inflorescence length:	9.6"

***B. crispa* (27)**

This shrub performed well over 1997, having beautiful panicles of purplish pink flowers which are fragrant. Heavy pubescence is present which provides a lovely silvery sheen as well as spider mite resistance. Although this shrub sounds, and indeed is, beautiful, it is not truly cold hardy in zone 7b, so try it with caution.

Size (June / October 1997):	14" × 18" / 21" × 38"
Current form:	low mounded
Flower color:	pink
Average inflorescence length:	8" (estimated)

***B. davidii* 'Royal Red' (24; 54 including all synonymous plants)**

If imitation is the sincerest form of flattery then 'Royal Red' has indeed been flattered. There are more names given to this cultivar than to any of the other *Buddleia* which we have seen. Flowers are a reddish purple. Spider mite resistance is better than average for a *Buddleia davidii* cultivar. Form is upright to high mounded. Indeed, this shrub may make a nice single stemmed tree if pruned properly

Size (June / October 1997):	80" × 69" / 100" × 90"
Current form:	upright - high mounded
Flower color:	reddish purple
Average inflorescence length:	9.6"

***B. davidii* 'Summer Rose' (23)**

A tall growing *Buddleia* with beautiful black raspberry ice cream colored flowers. This plant is fantastic because of its full form as well as the color of its flowers. Spider mite resistance is average for a *Buddleia davidii* cultivar.

Size (June / October 1997):	73" × 78" / 88" × 78"
Current form:	high mounded
Flower color:	deep lavender
Average inflorescence length:	15.2"

***B. davidii* 'Potter's Purple' (20)**

Flowers are a very deep purple, perhaps the richest purple of all of the *Buddleia davidii* cultivars. Form is currently low mounded, however over time this shrub will no doubt become high mounded. Spider mite resistance is unknown, but is probably average among *Buddleia davidii* cultivars.

Size (June / October 1997):	56" × 59" / 67" × 59"
Current form:	low mounded-high mounded
Flower color:	deep purple
Average inflorescence length:	12.4"

Table 3: Eggs laid by five female spider mites on 9 *Buddleia* taxa after 96 hours in glass vials and average number of mites present on 6 cm^2 of foliage over May and June, 1997.

Species/Cultivar	Lab trial (Eggs per vial)	Field trial (mites per 6 cm^2)
B. davidii 'African Queen'	145.5 a[z]	3.2 b
B. davidii 'Pink Delight'	NT[y]	3.3 b
B. lindleyana 'Gloster'	74.5 b	4.8 a
B. davidii 'Ile de France'	59.8 b	1.6 cde
B. davidii 'Bonnie'	NT	2.6 bc
B. × *weyeriana* 'Sungold'	54.3 b	2.4 bc
B. davidii 'Black Knight'	47.0 bc	1.4 def
B. davidii 'Miss Ellen'	32.5 cd	0.7 f
B. davidii 'Nanho White'	28.1 cd	1.5 def
B. × 'Cornwall Blue'	20.7 de	1.0 ef
B. fallowiana 'Alba'	9.7 e	0.0 g

[z]Means followed by the same letter are not significantly different at the $\alpha = 0.05$ level using Fisher's LSD test (data square root transformed).

[y]NT indicates that this shrub was not tested using a lab trial.