

Plant Evaluation Notes

An Evaluation Study of *Alchemilla*

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Lady mantles are invaluable garden plants; perhaps not the flashiest, but easy to grow in diverse landscapes, and the perfect foil for many other perennials. The vibrancy of their chartreuse flowers is singular, while a string of pearly dewdrops accentuates the elegance of the foliage. Who hasn't marveled at a raindrop moving languidly over the leaf surface like a bead of mercury? The discovery of an early morning, dew-covered lady's mantle delights children and seasoned gardeners alike.

Alchemilla, or lady's mantle, is an uncommon herbaceous member of the rose family (Rosaceae). The insignificant flowers, which lack showy petals, do not have much in common with flamboyant cousins like roses (*Rosa*) and cinquefoils (*Potentilla*). There are approximately 300 species of *Alchemilla* native to Europe and Asia, although fewer species are commonly cultivated.

Most lady's mantles are mounded, clump-forming perennials with basal leaves arising from woody rhizomes. The palmately lobed to divided leaves are typically fan-shaped with small apical teeth. The long-stalked, grey-green to green leaves are often

covered with soft hairs, which hold water drops on the surface and along the margins. The green to bright chartreuse flowers are small, apetalous and borne in clusters above the foliage in late spring and summer.

Lady's mantles grow best in moist, well-drained soils in full sun to partial shade. Extra water may be required in full sun, especially in areas of high summer temperatures. Drought stress can cause leaves to wither, but new leaves sprout quickly if cut back. Lady's mantles self-sow readily; deadheading reduces the number of seedlings produced as well as rejuvenates the plants. Lady's mantles do not have any significant disease or pest problems.

The small stature of lady's mantles is ideal for the front of perennial borders, as edging along paths and walls, in rock gardens and as ground covers. The grey-green leaves of *Alchemilla mollis* and other species blend well with many colors in the garden, including purple, blue, pink, yellow and white. Lady's mantles combine well with hardy geraniums (*Geranium*), bellflowers (*Campanula*) and sages (*Salvia*), as well as foliage plants like coral bells (*Heuchera*) and ferns.

The Evaluation Project

The Chicago Botanic Garden (USDA Hardiness Zone 5b, AHS Plant Heat-Zone 5) evaluated 18 taxa of *Alchemilla* from 1995 to 2000. The comparative trial included cultivars of *Alchemilla mollis*, a popular garden perennial, and a number of less commonly cultivated species. All plants were commercially available at the outset of the trial.

Three plants of each taxon were planted in a site that received full morning sun. Mature trees nearby provided afternoon shade for all plants. The well-drained, clay-loam soil had a pH of 7.5 during the trial. Maintenance practices were kept to a minimum, but included providing additional water as needed and mulching with shredded leaves around the plants. No winter protection was provided.

Observations

Throughout the evaluation period information was collected on ornamental traits; disease and pest problems; cultural adaptability; and winter hardiness. Plant traits and evaluation specifics for 16 taxa are shown in Table 1; the summary rating is based on floral effectiveness (flower production and longevity of flower color), habit quality and plant health. *Alchemilla caucasica* and *A. pubescens* were determined to be the same plants as *A. erythropoda* and *A. glaucescens*, respectively; therefore, were not included in Table 1.

Overall, the lady's mantles performed well, with 12 of the 16 taxa receiving four-star ratings based on good health, robust plant habit, strong floral display and winter hardiness. The *Alchemilla* trial was unique in the fact that subtle differences among many of the species and cultivars made them basically indistinguishable from each other. General comments on foliage, plant habits, floral traits and bloom periods are applicable to most of the lady's mantles, with few exceptions noted.



Alchemilla mollis 'Auslese'

Richard Hawke

*Alchemilla alpina*

The lady's mantles divide easily into two groups based on foliar traits: lobed and deeply parted into separate leaflets. The number and cut of the lobes varied among species, ranging from five to 11 lobes, and from shallow to cleft (cut almost to the middle). *Alchemilla alpina*, *A. conjuncta* and *A. saxatilis* had leaves deeply parted into separate leaflets. All other *Alchemilla* taxa had palmately lobed leaves with basal lobes that touched or overlapped creating a circular outline. All species had some degree of foliar pubescence, either on both surfaces or on undersides only. *Alchemilla alpina*, *A. bulgarica*, *A. conjuncta* and *A. glaucescens* featured prominent silvery margins due to silky hairs on the undersides of the leaves. *Alchemilla conjuncta* and *A. saxatilis* were uncommon in having semi-glossy green leaves. Leaf sizes ranged from 2 inches on smaller species such as *A. alpina* and *A.*

bulgarica, up to 6 inches on *A. mollis* cultivars.

The majority of lady's mantles had dense, mounded habits throughout the evaluation term. Habits were typically two to three times wider than tall, and were approximately twice their foliar height when inflorescences were fully upright. The propensity of the inflorescences to flop down around the perimeter of the plant as they aged caused most plants to have a flattened appearance by midsummer. *Alchemilla vulgaris* was similar in most characteristics to *A. mollis*, but tended to have a looser, spreading habit unlike any of the other species. *Alchemilla bulgarica* and *A. epipsala* were small-leaved versions of *A. mollis*, but *A. epipsala* had darker leaves. There were no obvious dissimilarities between *A. mollis* cultivars, except that 'Senior' was slightly shorter.

Slight differences in flower color were observed among the species. *Alchemilla mollis* cultivars tended to have the brightest chartreuse flowers. Several other species had duller yellowish green flowers, while *A. glabellata* and *A. saxatilis* had light green flowers. An exact bloom period was difficult to determine since there is little distinction between open and spent flowers. Instead, the period of floral effectiveness is based on the quantity of flowers produced and how long the flowers remain colorful. Flowers on most species were colorful from late May to mid-July and into August on *A. mollis* cultivars. Flower production had a greater effect on

the quality of the floral display since color longevity was fairly consistent among the lady's mantles. Species with greener flowers made less of a visual impact than species with more brightly colored flowers. The inflorescences of *A. mollis* and cultivars were usually the largest, up to 9 inches across, while the smaller species had inflorescences to 6 inches across.

The lady's mantles were concluded to be cold hardy and free of diseases and pests. Only *Alchemilla conjuncta* and *A. saxatilis* suffered winter injury because of poor health in preceding seasons. *Alchemilla conjuncta* received the lowest rating due in part to severe crown damage in 1996-97, following consecutive years of poor health. It completed only three years of the trial and died during the winter of 1997-98. *Alchemilla saxatilis* was in good health until the summer of 1998 when it unexpectedly declined; all plants subsequently had some crown damage during the following winter.

Summary

With few exceptions, the *Alchemilla* species in the trial proved to be good garden plants. The similarity of the cultivated species allows gardeners to interchange them depending on availability. Recommending one cultivar of *A. mollis* over another is not necessary due to the minor differences in leaves, flowers and habits. Similarities aside, lady's mantles remain popular with gardeners as accent plants and ground covers.

Table 1: Plant Characteristics and Performance Summary Ratings

| Overall Rating | <i>Alchemilla</i> | Height | Width | Leaf Color | Leaf Pubescence | Leaf Shape | Flower Color | Floral Effectiveness ¹ |
|----------------|-------------------------------|--------|--------|--------------|-----------------|-----------------------------|-----------------|-----------------------------------|
| ★★★★ | <i>alpina</i> | 5 in. | 12 in. | green | undersides | 5-7 deeply parted/leaflets | yellowish green | good |
| ★★★★ | <i>bulgarica</i> | 8 in. | 30 in. | grey-green | undersides | 7-9 cleft lobes, palmate | yellowish green | excellent |
| ★★★ | <i>conjuncta</i> | 5 in. | 12 in. | glossy green | undersides | 7-9 deeply parted/leaflets | greenish yellow | poor |
| ★★★★ | <i>epipsala</i> | 12 in. | 30 in. | grey-green | undersides | 9 shallow lobes, palmate | chartreuse | excellent |
| ★★★★ | <i>erythropoda</i> | 7 in. | 16 in. | blue-green | both sides | 7-9 cleft lobes, palmate | yellowish green | good |
| ★★★★ | <i>glabellata</i> | 7 in. | 25 in. | grey-green | undersides | 5-7 cleft lobes, palmate | light green | good |
| ★★★ | <i>glaucescens</i> | 10 in. | 24 in. | green | both sides | 7-9 shallow lobes, palmate | yellowish green | fair |
| ★★★★ | <i>mollis</i> | 15 in. | 30 in. | grey-green | both sides | 9-11 shallow lobes, palmate | chartreuse | good |
| ★★★★ | <i>mollis</i> 'Auslese' | 14 in. | 32 in. | grey-green | both sides | 9-11 shallow lobes, palmate | chartreuse | good |
| ★★★★ | <i>mollis</i> 'Improved Form' | 12 in. | 28 in. | grey-green | both sides | 9-11 shallow lobes, palmate | chartreuse | good |
| ★★★★ | <i>mollis</i> 'Robusta' | 14 in. | 36 in. | grey-green | both sides | 9-11 shallow lobes, palmate | chartreuse | good |
| ★★★★ | <i>mollis</i> 'Senior' | 10 in. | 28 in. | grey-green | both sides | 9-11 shallow lobes, palmate | chartreuse | good |
| ★★★★ | <i>mollis</i> 'Thriller' | 14 in. | 30 in. | grey-green | both sides | 9-11 shallow lobes, palmate | chartreuse | good |
| ★★★ | <i>rigida</i> | 7 in. | 18 in. | green | undersides | 7 cleft lobes, palmate | yellowish green | fair |
| ★★★ | <i>saxatilis</i> | 7 in. | 18 in. | glossy green | undersides | 5 deeply parted/leaflets | light green | fair |
| ★★★★ | <i>vulgaris</i> | 14 in. | 30 in. | grey-green | both sides | 9-11 shallow lobes, palmate | chartreuse | excellent |

Overall Ratings: ★★★★★ excellent, ★★★★ good, ★★★ fair, ★★ poor, ★ very poor; half-star ratings included in table.
¹Based on longevity of flower color and percent of flower coverage; excellent 76-100%, good 51-75%, fair 26-50% and poor <25%.

The Plant Evaluation Program is supported by the Searle Research Endowment and the Woman's Board of the Chicago Horticultural Society.

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