The Fuller's Teasel. (*Dipsacus Fullonum*, L.)

Author(s): W. Dallimore

Source: *Bulletin of Miscellaneous Information (Royal Botanic Gardens, Kew)*, Vol. 1912, No. 7 (1912), pp. 345-350

Published by: Springer on behalf of Royal Botanic Gardens, Kew

Stable URL: <http://www.jstor.org/stable/4104552>

Accessed: 23-06-2016 14:34 UTC

Your use of the JSTOR archive indicates your acceptance of the Terms & Conditions of Use, available at
<http://about.jstor.org/terms>

JSTOR is a not-for-profit service that helps scholars, researchers, and students discover, use, and build upon a wide range of content in a trusted digital archive. We use information technology and tools to increase productivity and facilitate new forms of scholarship. For more information about JSTOR, please contact support@jstor.org.

Springer, Royal Botanic Gardens, Kew are collaborating with JSTOR to digitize, preserve and extend access to *Bulletin of Miscellaneous Information (Royal Botanic Gardens, Kew)*

660. *Xanthosoma cordifolium*, N. E. Brown [Aroideae-Colocasieae]; affinis *X. sagittae-folio*, Schott, sed foliis obtusissime rotundato-cordatis et spadice organis neutris clavatis carente longe differt.

Herba perennis. *Foliorum* petioli 4·5–6·5 dm. longi, ad apicem vaginato-canaliculati, virides, purpureo-brunneis marginati; lamina deflexa, 4·5–6 dm. longa, 3·5–4 dm. lata, cordato-ovata, acuta, lobis basalibus obtusissime rotundatis, marginibus undulatis, supra viridis, subtus pallidior; venae primariae utrinque 8–10, costae basales in sinu breviter denudatae, pluri-ramosae. *Pedunculus* 20–25 cm. longus, 1 cm. crassus, viridis. *Spathae* tubus 6–6·5 cm. longus, ellipsoideus, viridis, purpureo-marginatus; lamina 15–17 cm. longa, 7 cm. lata, oblonga, acuminata, basi sub-reflexa, superne adscendens, concava, pallide flavescens, purpureo-marginata. *Spadix* 15–16 cm. longus, parte feminea 2·5–3 cm. longa cylindrica pallide viridi, parte neutra 4–4·5 cm. longa, cylindrica superne breviter angustata pallide purpurascens, organis neutris infimis truncatis (nec clavatis), parte mascula 8–8·5 cm. longa cylindrica acuta alba.

BRITISH GUIANA. Described from a living plant sent from British Guiana in 1898 to the Royal Botanic Gardens, Kew, where it flowered in July of 1900 and 1901.

Xanthosoma pilosum, C. Koch, and *X. Holtonianum*, Schott. These two species properly belong to the genus *Caladium*, and have been so transferred in the Botanical Magazine, under t. 8402, where, however, the name *Holtonianum* has (by a printer's error) been spelt *Holtonianum*. They should in future be known as:—

Caladium pilosum, N. E. Brown (*Xanthosoma pilosum*, C. Koch).

Caladium Holtonianum, N. E. Brown (*Xanthosoma Holtonianum*, Schott).

XLIII.—THE FULLER'S TEASEL.

(*Dipsacus Fullonum*, L.)

W. DALLIMORE.

Early in the present year a communication was received at Kew from Mr. George E. North, of Messrs. Wm. North and Sons, teasel merchants, Gelderd Road, Leeds, respecting the increasing difficulty of obtaining a regular supply of teasels of English growth, and asking whether it would be practicable to cultivate the plant under glass, or whether a better cultural method could be suggested than the one now practised, whereby it might be possible to grow the plant as a paying crop with more certainty than at present, and so check the serious falling off in the production of teasel heads which has occurred during late years.

Subsequently I was instructed by the Director to visit Mr. North for the purpose of discussing the past and present positions of the teasel business, with a view to formulating suggestions on the lines indicated above, and the results of that interview and of the enquiries made elsewhere are embodied in the following notes.

Teasels of commerce are the dry flower heads of *Dipsacus Fullonum*, L., gathered about the time when the seeds are fully

grown. The plant is a well-known biennial which is widely distributed in Europe, and is included in the British Flora. During the first year of its life a tuft of bright green leaves, which may be anywhere between 6 and 15 inches long, is formed, and the following year a central stem rises to a height of from 3 to 6 feet. This branches freely, and each division is terminated with a flower head. The flowers, which open during July and August, are regularly interspersed with strong, wiry, curved bracts, which, when dry, have considerable elasticity. The uniform development of these bracts and their subsequent ripening decides the value of the heads.

A great deal of difference is noticeable in the size of the heads borne by individual plants. The central one which terminates the main axis is always the largest, and is sometimes called a "king teasel." The next in size are found at the ends of the principal branches and are called "queens;" whilst minor branches bear smaller heads, which are distinguished as "princes" or "buttons."

As is well known, teasel heads have been used for many centuries by cloth-workers for raising a nap on cloth, and although inventors have tried for generations to construct a machine capable of giving the same finish, nothing has yet been found to equal the teasel. For use, the heads are arranged on a revolving cylinder, over which the newly-made cloth passes in the opposite direction to that in which the cylinder is turning. In passing, the teasel hooks tear up the surface of the cloth without in any way injuring the material, whereas steel or wire hooks often cause flaws. As a successful finish to cloth depends entirely on the regularity and evenness of the teasel hooks, it will be seen at once that damage through bad ripening, or other causes, adversely affects the monetary value of the crop. An idea of the nicety with which the heads have to be arranged for different classes of work may be gathered from the fact that Messrs. North sort them into 70 different sizes before distributing them to their customers.

Although several countries include the teasel amongst their agricultural crops, it is usually regarded as a minor one, and the areas under cultivation are restricted, therefore a shortage in any one country results in an all-round rise in price. France has, perhaps, the largest acreage, and French-grown heads have a higher reputation than those grown in other countries. In addition to England and France, teasels are grown in Germany and the United States.

According to Syme, "British Botany," ed. 3, vol. iv, p. 248, the culture and use of the teasel was introduced to England by foreign artisans about the reign of Richard I., and the plant has been grown regularly since the days of Edward III. The crop, however, has always been looked upon as a precarious one, and its culture has been in the hands of comparatively few people. Somersetshire, Gloucestershire and Wiltshire formed the principal seat of the teasel-growing business in the British Isles from its earliest days until the cloth-manufacturing centres were moved to the Yorkshire coalfield. About that time teasel-growers moved northwards also, and teasel-growing in Yorkshire has been carried on more or less successfully to the present day; a sequence of bad

seasons has, however, decided the majority of growers to give up the business. In Somersetshire, at the present time, according to information kindly furnished by Mr. Thos. F. Plowman, the cultivation appears to be nearly confined to Ashill Forest, West Somerset, where the soil is a stiff cold clay, and much of the working is done by spade labour.

An early account of teasel-growing in the British Isles is given in Johnson's edition of "Gerard's Herball or Generall Historie of Plantes," published in 1633. Two varieties are referred to, "tame" and "wild," the former corresponding with the Fuller's teasel of the present day.

In 1640 John Parkinson, in his "Theatrum Botanicum," refers to three kinds of teasels, "garden or manured," "wild," and "cut-leaved." According to present day nomenclature these may be referred to *D. Fullonum*, *D. sylvestris*, and *D. laciniatus* respectively. To the first named Parkinson refers in the following words: "The first is onely manured and sown in gardens or fields for the clothmakers use, by raysing the wooll of cloth with the crooked prickles of the heads, make it fit for their sheeres to cut it smooth and thereby leave a fine nappe thereon pleasing to all."

Philip Miller, in the first edition of his "Gardeners' Dictionary," published in 1731, recommends that teasels should be grown alone. The practice had evidently been followed of growing a thin crop of corn with the plants for the first year, such as is done in some places at the present time. He gives the yield as 150 staves to the acre and the price as 1s. a stave.

The Rev. Wm. Hanbury, in vol. ii, p. 126, of his "Complete Body of Gardening," published in 1771, describes three kinds of teasels, "fullers," "jagged-leaved," and "small-leaved," and gives the method of cultivation adopted for the first-named. The salient points are as follows: Seeds were to be sown broadcast at the rate of one to one and a half pecks to the acre in March. When the young plants were large enough to be seen well, they were to be thinned out to from 12 to 18 inches apart each way, and the ground between hoed over. Several subsequent cleanings, and thinning if necessary, were recommended, and the heads were to be cut during the second August of the plant's life. A good crop tied in bundles was at that time worth 8l. an acre.

A good account of teasel-growing in England is given by Johnson and Sowerby in "Useful Plants of Great Britain," pp. 139-140. Teasel cultivation in France is dealt with in the "Journal of the Royal Society of Arts" for December 15th, 1911, pp. 128-129; and a good account of teasel culture in the United States may be found in "Bailey's Cyclopedia of American Agriculture," vol. ii, pp. 636-638.

The cultural methods adopted by Mr. North are as follows:—

Land is hired from farmers for the cultivation of one crop at the rate of 6l. per acre per year. Ground which will produce good wheat is considered most suitable for teasels, and, when possible, a crop of wheat is followed by teasels; the ground being well worked but not manured. Seeds are drilled into the ground in March of one year for the succeeding year's crop. In June the ground is

weeded, and any vacancies which may occur in the lines made up. In July the ground is again weeded and the plants are thinned out. In October a further cleaning of the ground and loosening of the surface soil takes place. Nothing more is done until March, when the ground is again loosened. At this time the plants are finally thinned, the stronger ones being left about three feet apart each way. Those taken out are used to fill up any gaps caused by death through damp or frost during winter. In May a final cleaning is given, and during the next two months a strict watch is kept in view of a possible attack by caterpillars. The harvest takes place during August and September. When the time approaches, sheds with open sides and thatched roofs are erected in the fields, and in these the heads are dried. As the heads mature at different periods, the plants have to be gone over several times. They are cut with about six inches of stalk and tied up in handfuls. These are then threaded on long poles and hung in the sheds for about five weeks to dry. They are then taken into a barn, sorted and tied up into staves or bundles ready for sale. A bundle of heads varies considerably in price, the poorer ones being as low as 35s. and the best ones as high as 24l. Some factories use about three bundles a month, and Mr. North estimates the annual value of the heads used in this country at about 15,000l.

For comparison with the method of cultivation adopted in England the following extracts bearing upon the cultivation in France and the United States are taken from the above-mentioned articles. In France the plant is found to thrive best in a light, gravelly soil, with a southern aspect. The seeds are sown in spring and the young plants well thinned out. In August they are transplanted into rows about 12 to 15 inches apart, and are kept well weeded during winter. Sometimes they are sown in the places where they are to remain, and a cereal is sown with them, so that some return may be obtained from the ground during the first year. In the following spring, as soon as the plants have attained a height of from 20 to 24 inches, a number of the side shoots are removed, from eight to twelve being considered sufficient for each plant to carry. Harvesting is commenced when the leaves begin to fall or to turn yellow. When dry the heads are packed in boxes containing from 25 to 100 each, all of which must be of uniform size and colour. The principal teasel-growing districts in France are said to be Bouches-du-Rhone, Vaucluse, and Seine-et-Oise. In 1909, 3690 acres of teasels were grown in the three districts, and 40,380 cwts. of heads were produced which were valued at 51,237l.

Teasel cultivation in the United States appears to have commenced about 1840. At that time William Snook, a resident of Onondaga County, New York, paid a visit to his home in England and took back seeds. He afterwards imported teasel growers from England and established a small but important industry, which, according to the previously mentioned article, is still retained, although the industry has been kept within a radius of ten miles from the place where it was started. The "Diplomatic and Consular Report," No. 4148 (1907), however, refers to teasels being grown to a small extent in Clackamas County, Oregon. The cost of growing is there given as twopence a pound for dried heads

and the selling price as fourpence a pound. In America it is usual to sow the seeds in drills 3 to 3½ feet apart with a thin crop of corn. The corn is gathered and the straw left standing to afford some protection from snow during winter. The plants are eventually thinned to eight or ten inches apart in the rows and harvesting takes place in a similar manner to that adopted in England. The average crop is 100,000 heads to the acre (about the same as in England), and the price in New York State is from 90 cents to one dollar a thousand, although it may drop to 50 cents or rise to two dollars. One thousand heads are said to weigh ten pounds.

Regarding teasel culture in England there appear to be two critical periods. One is during winter when many plants are killed by inclement weather and the other is during the harvest when a period of wet weather may partially or wholly ruin the crop. On account of this Mr. North suggests indoor cultivation. In support of his suggestion he has grown a few plants indoors and produced heads which other experts pronounced to be equal in quality to the best French heads. On the other hand his experiment was not on a sufficiently large scale to be able to form an opinion as to the financial result. In the absence of experience one would be inclined to consider that such a scheme would be a financial failure for the gross average income from an acre of teasels is said to be about £70, and this after the ground has been occupied for 18 months, including two summers. An acre of glass built in the cheapest possible way would mean a considerable outlay; the soil would require to be renewed frequently, or additional expense would have to be incurred by building portable houses; wear and tear would be a heavy item; the plants would need more cultural attention than when grown outside and there would be a greater risk of injury by insect pests. The method of culture might, however, prove successful, but one would recommend caution and thorough work of an experimental character before an extensive scheme were undertaken.

There appears good reason to suppose that better results might be obtained by moving the cultural area from Yorkshire and the western counties to Essex and Hertfordshire and perhaps Norfolk and Suffolk. These counties have a drier winter and usually a sunnier summer and autumn, whilst there is plenty of suitable ground. It also seems that experiments might be conducted with a view to obtaining a race which would stand the winter well, for plants full of vigour in spring might be expected to mature earlier than those which had suffered in winter and by advancing the harvest by one or two weeks the crop might sometimes be saved. Experiments ought also to be made with a view to saving the ground for one summer. By sowing seeds thinly on a small area of ground, a crop of corn could be taken from the rest and the teasels planted out in autumn. What saving could be effected by this means, or whether there would be any saving, can, of course, only be determined by experiments. Efforts have been made to breed teasels yielding heads of particular sizes but without any definite results, and Mr. North finds from his experience that the best plan is to select seeds from well grown heads, then all the sizes can be obtained from the crop.

Should any farmer wish to experiment with the cultivation of teasels in the eastern counties, Mr. North has expressed his willingness to supply the necessary seed free of cost.

The following Return, showing the value of teasels imported into the United Kingdom from France, Germany, and the United States during the years 1910 and 1911, has been supplied by the Statistical Office of the Custom House, London.

Country whence consigned.	Year 1910.	Year 1911.
	£	£
France	4,987	8,681
Germany	110	295
United States	1,326	349

Briefly, the conclusions arrived at may be summarised as follows :—

According to the present outlook a steady demand for teasel heads is likely to continue, although it is doubtful whether there is much room for expansion in the world's production.

The cultivation of the teasel ought not to be allowed to drop in England, and experiments should be made with a view to finding the most suitable localities, the most economical method of culture, and a strain of plants which will winter well.

Farmers in the most suitable districts should be encouraged to undertake teasel-growing on a small scale, but it would be unwise for anyone to make it the sole, or even the principal crop, for although a well-gathered harvest of heads may be expected to result in good prices, so much depends on the weather at harvest time, that the crop must always be looked upon as risky.

Glass-house culture is worth a trial but it is probable that it will be found to be too expensive to be generally adopted.

XLIV.—MISCELLANEOUS NOTES.

MR. FRANK BIRKINSHAW, a member of the gardening staff of the Royal Botanic Gardens, has been appointed by the Secretary of State for the Colonies, on the recommendation of Kew, Assistant Agricultural Superintendent in St. Vincent, West Indies.

W. R. GUILFOYLE.—We regret to notice the death, on June 26th last, of Mr. W. R. Guilfoyle, for many years Director of the Melbourne Botanic Garden, Australia.

He was born in Chelsea, but went out to Australia early in life, and his first botanical appointment of importance was as botanist to H.M.S. Challenger, during her cruise among the South Sea Islands, in 1868.

In 1873 Mr. Guilfoyle succeeded the late Baron Ferdinand von Mueller as Director of the Melbourne Gardens, and it has been owing to his skill in landscape gardening that the gardens have attained their present beautiful condition.