

NOTES
ON THE
CULTIVATION
OF
POPPY.

BY
T. A. M. GENNOE,

OPIMUM DEPARTMENT.

BENARES:

PRINTED AT THE MEDICAL HALL PRESS.

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P R E F A C E .

The following few pages containing some notes on the cultivation of Poppy were drawn up by the writer for his own private use when he was employed in the district. They profess to set forth nothing beyond a simple agricultural view of the general economy of the culture of Poppy, a plant yielding so immense a portion of the Imperial Revenue, and involving a business where an outlay of upwards of half a million sterling is circulated amongst nearly 250,000 of the peasantry. The writer has strictly refrained from treading in the remotest degree the ground of the official and administrative nature of the system. The notes have been allowed "to see light" in the humble hope that they might be a manual in the hands of some of the many newly appointed incumbents in the Department whose opportunities of personal experience have been as yet limited.

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NOTES
ON THE
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OF
POPPY.

1. SOIL of a sandy loamy nature is best adapted for Poppy cultivation, though clayed lands are also much used : lands situated on the margin of rivers but free from any collection of stagnant water are also well suited for the poppy plant, alluvial soils likewise, provided the deposits are sand and clay, afford good productive crops. There is a remarkable difference in the quality of the produce of these several kinds of soil, that obtained from the first mentioned is characterised by its rich fawn or dark brown color, whilst the consistency is high and the texture unbroken, whereas the produce of alluvial ground is generally not only dark in color, but less granular in texture and somewhat in a liquid state. Poppy fields should, if practicable, be selected near the vicinity of villages, not only on account of the facilities of irrigation they possess, and the better opportunities the cultivators have of watching the culture of the plant, but lands so situated are always accounted rich from the constant supply of human manure

they receive. The countries are fond of making fires in the cold winter, care therefore should be taken not to allow smoke to choke up the breathing pores of the plant. Soil composed partly of saline earth or where nitre is seen diffused in other earthy substances should always be eschewed, so also lands abound with siliceous and calcareous rocks, where the nitre is found in the hard form of Kunkur, are to be avoided. Usar lands or sandy soils are equally prejudicial to the free growth of the poppy, as these lands always yield an abundant efflorescence of soda. I have seen some excellent crops of poppy grown on the sites of jungle which have been brought under cultivation, and now possess a rich loamy soil.

2. From July or when the rains set in and the ground is moist, the lands should commence to be prepared by being ploughed up, so that by the middle of October according to their requirements, a liberal supply of manure might be used on them. Ploughing should however be suspended when the fields are covered with rain water, as it impoverishes the soil. As the season for sowing advances or about the month of November, flocks of goats or sheep if procurable, might be penned with very great advantage on the fields for one or more nights, as the manure thus obtained operates favorably on, and is peculiarly invigorating for the soil. The poppy, unlike many other plants, the soil of which requires what is agriculturally termed "a rotation of crops" may be sown on the same ground year after year with unerring regularity, as the quantity of decayed vegetable and animal manure put into the soil imparts sufficient nourishment to the ground to sustain annual crops of poppy without in the least degree being deteriorated by those yearly sowings.

3 When the lands are ready or about the middle of November the early sowings may commence, and the 2nd and 3rd be concluded in all December. The seed should be of the previous year free from damp. It should be moistened in water the evening previous to sowing, and the next morning after being removed out of the water, it should be scattered over the fields mixed with fine earth at the rate of 2 seers per Beggah of the large Bazar weight. Should the ground be dry, it might be irrigated with advantage prior to sowing. A other way is adopted in some districts of throwing broad-cast the dry seed. After sowing, the land should be irrigated the next day (if not previously done) and then on the succeeding day ploughed and harrowed.

4 After a week the beds should be made from $3\frac{1}{2}$ to 4 cubits in length by 2 to $2\frac{1}{2}$ cubits in breadth. All the beds should be placed in consecutive rows according to the level of the ground, so that there may be no difficulty in irrigating the land. A drain or outlet should intervene between every two beds for the passage of water. Lands bordering on rivers and jheels as they retain their moisture till December, the necessity of forming beds in them does not exist on that account, as they (the beds) are only useful to facilitate the watering of crops. Wells are essentially necessary for poppy fields and every facility and encouragement should be given to construct them wherever they are wanted. Kucha wells may be dug at a very trifling cost which would be more than three-fold repaid by the productive returns of the crops. Well-water is preferred to water obtained from any other sources such as jheels and rivers. but the cultivators from necessity are frequently obliged from the

want of wells or their great distance from the fields to save themselves of the irrigation.

5. When the plant attains to the size of two inches in height, the beds after being well irrigated should be carefully weeded and thinned and the plants to be retained should be kept from 3 to 4 inches apart from each other. Two weeks after the same operation is to be practised, all the sickly and superfluous plants, together with all foreign and noxious herbs should be removed, leaving the vigorous poppy plants at distance of 7 or 8 inches from each other. The process of gently digging up the soil with a hoe or spud should be diligently carried out, and the fields must continue to be dug and irrigated every two weeks, the roots thus imbibe moisture and the plant springs up large and luxuriant.

6. In the process of irrigation care should be taken not to allow the water to exceed one inch in depth or in other words the entire sowing should not be under water. It is very necessary that irrigation should be pursued at stated intervals of time until the collections begin.

7. When the plants have been in bloom for some time, the green capsules become slightly coated over with a fine transparent white colored surface and the pods become less yielding to the touch when pressed, when this change presents itself, the Cultivators at once perceive that the lact^e is arrived to maturity and is fit for incision. Another means for recognising this, is, when a juice exudes on breaking off the series of stigmata formed on the apex of the pod.

8. When the incisions commenced the process should be carried on regularly every third day, and according to

the time of collection whether late or early in season, or the condition of the plant, whether sickly or healthy, from 2 to 7 incisions might be expected. It is to be noted that there is a wide difference between the produce of the earlier compared with the later sowings, the former is of lower spissitude but more abundant in bulk, whilst the latter is just the reverse, poor in quantity, but of higher and more superior consistence.

9. Gentle westerly winds are most favorable for our Opium collections as also for inspissating the drug when collected. Opium gathered in during the prevalence of easterly winds is scanty, because the juice does not exude freely from the incisions, and the Opium collected is somewhat dark in color from the atmospheric humidity with which it gets impregnated. The incisions should invariably be made in the afternoon and the operation of collection the next morning.

10. It will be necessary now to enumerate a few of the causes which contribute to the falling off of produce or tend to the entire destruction of the plant. "Bhar Bhar" a prickly plant is very destructive to the poppy, absorbing the nutritive qualities of the ground intended for the latter alone. These ought to be steadily rooted up wherever they make their appearance. Insects are apt very often to attack the crops. When this occurs among the early sowings, the best plan is to persevere and re-sow, but when they begin their ravages after the plants have germinated and attained to some size, the following bait might be used with very great success, viz, to cut gourds or castor-oil leaves into pieces and strew them over the fields. The next morning they will be covered over with

the insects as they readily forsake the poppy for the more palatable food offered to them, thus they can easily be removed and destroyed in a collective mass. The process of irrigation too offers a good opportunity for the insects to be destroyed by birds. There is a parasitic shrub called by the natives "*Tobru*" which is very detrimental to the growth of the poppy, it completely entwines itself around the root of the poppy, and gradually injures and chokes up the absorbing pipes of the little poppy spongelots; being a much stronger plant, it easily overpowers the tender poppy, and so induces premature decay. The poppy plant is subject in common with other crops to certain vegetable diseases, the two most common and most fatal are called "*Murka* and *Khurka*" in the village vernacular, the former shows itself among the early sowings, its ravages are marked by the plant becoming shrunk and stunted in growth, the leaves become sore and yellow, and the plant eventually decays away, affording if it has lingered a while very little (if any at all) of produce; the cultivators attribute this disease to a species of infusorial worms which erode the tender roots, and not to any agency of the soil, for side by side may be commonly observed two beds, one teeming with luxuriant plant full of rich foliage, whilst the other may have only a few lank diminutive plants, possessing not the slightest shadow of verdure. The "*Khurka*" occurs late in season and attacks the plant in its healthiest state, this blight arises from excessive damp produced by a sudden change of atmosphere attended with rain and damp wind, especially affecting fields which have just before been already seasonably irrigated. There is no mistaking the effect of such a transition, the bright green colour yields to a dark and

sombre tint which transfuses itself alike over the leaves, the stalk, and the capsule. a sensible decrease is at once observable in the produce which before long ceases altogether, for the quality completely saps the vitality of the plant. The other causes which prove injurious to the plant, and materially affect its productive powers, are either natural visitations, such as a fall of hail, a severe frost, inopportune showers of rain, or excessively strong winds during collections, or the causes may be as in too many instances they truly are from a defective system of tillage.

11. For preparing the opium from its crude state to the consistency at which it ought to be delivered, the following simple treatment should be attended to; the drug no sooner it is collected should be temporarily kept as it is usually done in a shallow brass vessel placed in a slanting position, so that the sediment called "*Pusserwah*" (got from down uniting with the juice which exudes from the incisions) might be detached from the pure drug, the next day the opium may be transferred to shallow earthen vessels, and the same process repeated on each day the collection is pursued. The drug should be manipulated at least once a week. The *Pusserwah* which accrues ought to be kept separate in another vessel. By a careful observance of these rules, the opium will be of good color and quality. Every thing (we would lay stress on this) depends on the early handling of the opium and the speedy separation of the *Pusserwah* before it deteriorates the drug, for it gets so closely combined with it as to become part of the mass and almost impossible to be disunited. If the Opium be kept in its crude state without being seasonably manipulated, it is apt especially if the wind has been easterly to become dull in color and aroma, and muggy to the touch

Care should be taken to preserve the drug from places where there is much smoke. It should not on any account be exposed to the sun, as the oxygen to be absorbed from it would discolor the drug, but a free current of air is very beneficial. Cultivators should be strictly guarded against stowing away their opium in "Kottas" or grain receptacles attached to their houses, as these places from their peculiar construction are almost perfectly destitute of ventilation.

12 The following hints will be found useful for the manufacture of what is departmentally termed flower leaves used as a cover for the opium cakes. The flowers are to be gently broken off from the plant and gathered into baskets, 30 or 40 of them may be taken each time and baked on a shallow iron pan or other earthen vessel over a moderate fire, and the mass when heated should be gradually rubbed down with a piece of rolled-up cloth, so that it may be pressed down to a circular form of the shape of a "*Chupatty*" from 6 to 12 inches in diameter, clean in color with all the rugged patches smoothed down to an even texture. Care must be taken that the leaves are not burnt in the process of baking, after being baked they should be dried out in the sun generally on the tops of houses or on charpoys. Flowers broken off by the wind and strown on the ground should not be mixed up with those gathered by the hand, as the former become black when prepared for use, so also flowers collected during a shower of rain invariably become discolored. One great precaution is necessary to be remembered which ignorant cultivators are apt to forget that flowers which have not attained to their full bloom should on no account be plucked as this process would diminish in a marked degree the pro-

duce of the plant. Spoilt and discolored leaves are never unserviceable, for they form excellent manure, and the cultivators in using them as such, virtually restore back to the soil much of the nutritive principles which it had expended in the production of the plant.

13. I think I have touched, though very cursorily, upon some of the salient points relating to the cultivation of poppy. The culture of this plant is more of a "horticultural" than an "agricultural" undertaking; every kind of land could not possibly be grown with poppy, plots of ground here and there in the immediate vicinity of villages, accessible for irrigating purposes and possessing facilities for constant watchfulness are generally chosen. The amount of labor and agricultural skill devoted on the crops from the early tillage of the fields to the gathering in of the produce can only best be explained by the remunerative profits realised by the growers. If sufficient care has been expended in the preparation of the land and persevering industry exercised in the subsequent treatment of the crops, the harvest to the cultivator cannot but be rich and pleasing, a beegah of land giving him in a good season from 8 to 10 seers of opium, the same quantity almost or perhaps 2 seers less of flower leaves and about from 2 to 2½ maunds of poppy seed, for which latter he finds a paying market in his own native bazaar near his village.

