

Trial of Half-Cotyledon Selection Scheme Aided by Tissue Culture for the Acceleration of Tea Breeding

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The breeding of tea plants is a time-consuming job because tea is a woody plant taking many years to grow from seed to maturity—the time of final evaluation of field performance. So, breeders have proposed various early selection procedures at the seedling stage.

In this paper we present a new method using divided halves of seed cotyledons for the early selection of tea. One half is for the maintenance and multiplication of the original stock, cultured on a solid medium (MS basic), and the remaining half

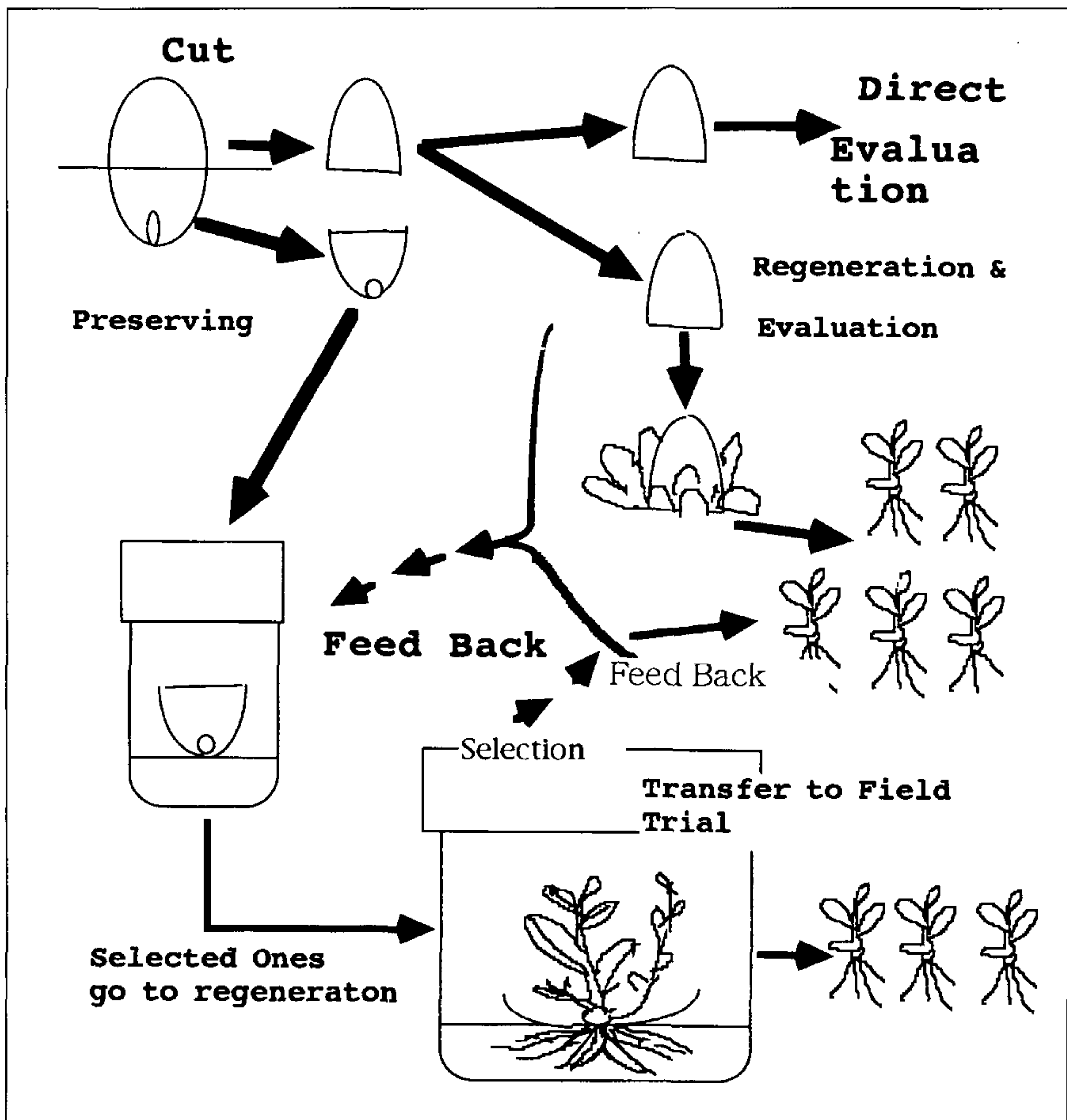


Figure 1. Brief protocol of half-cotyledon selection flow chart.

is used directly (or after multiplication *in vitro*) for several evaluations (chemical contents, disease resistance, DNA markers, etc.). Feedback seedlings (Fig. 1.) are selected and targeted for the next field trials. This procedure can save several years on the present breeding span (usually 15 to 25 years). A brief outline of our new protocol is illustrated in Figure 1.

Table 1. Results of inoculation trials of tea anthracnose disease resistance on the half-cotyledons of three cultivars of different degree of resistance.

Cultivar	No. cotyledons examined	No. diseased cotyledons	Diseased (%)
Yamatomidori	341	124	36
Sayamakaori	101	66	65
Miya-A—5	183	67	37

Effects of an Anti-Auxin-Like Substance Containing Fluorines and Chlorinated Indole Auxin on the Seed and Vegetative Propagation of Two Turf Species

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The effects of 4,4,4-trifluoro-3-(indole-3-)butyric acid (TFIBA) and 4-chloroindole-3-acetic acid (4-Cl-IAA) on the seed and vegetative propagation of two turf species were investigated. As a result, TFIBA was seen to promote noticeable root growth on turf seedlings and sod.

INTRODUCTION

Turf is often utilized for the creation of green amenity areas and the prevention of soil erosion (Eguchi, 1988). It is also utilized as a ground cover in parks and sports facilities. Among turf species, bentgrass is multiplied by seed, whereas the multiplication of manilagrass (*Zoysia matrella*) is usually by vegetative propagation (Crockett, 1975). In this study, a number of treatments including a new chemical, an anti-auxin-like substance containing fluorines and chlorinated indole auxin, were applied to both turf taxa at the propagation stage, to find a more efficient method of multiplication.