

Plant Propagation Lab Exercise

Module 3



UF UNIVERSITY of
FLORIDA

COMMON ROOTING HORMONES

METHODS OF AUXIN APPLICATION

An introduction to plant propagation laboratory exercises by:
Kathryn Campbell, Brett Williams, and Dr. Mack Thetford



BENEFITS OF ROOT-PROMOTING COMPOUNDS

- **PROMOTE AN INCREASE IN:**
 - % of root-forming cuttings
 - number of roots per cutting
 - uniformity of rooting
- **PROMOTE A DECREASE IN:**
 - root initiation time



ROOTING COMPOUNDS (AUXIN)

- IAA (Indoleacetic acid)
- IBA (Indolebutyric acid)
- NAA (Naphthaleneacetic acid)
- Phenoxy compounds



ROOTING COMPOUND FORMULATIONS

- **Pure chemical (pure crystals)**
 - acid forms not water soluble
 - K-formulations of IBA and NAA water soluble
- **Commercial Preparations**
 - Hormodin
 - Hormex
 - Rootone
 - Hormo-Root



AUXIN APPLICATION METHODS

- Talcum Powder
- Dilute Solution Soak
- Concentrated Quick Dip
- Foliar Spray



Foliar spray applications of auxins have become popular for reducing worker exposure to auxins during application.



GENERAL GUIDELINES

- Never dip cuttings in stock solution
- Stock solutions should be stored in dark conditions in refrigerator



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Evaluating the effects of auxin source and concentration on the rooting of stem cuttings

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LAB OBJECTIVES

- **Familiarize students with common types of rooting hormones**
- **Demonstrate procedures for stock solution preparation and dilution**
- **Compare effects of auxin source, formulation and concentration on % rooting, mean root number, and mean root length of cuttings**



NAA 1,000 ppm

NAA 5,000 ppm

NAA 10,000 ppm

IBA 10,000 ppm

IBA 1,000 ppm

IBA 5,000 ppm

KNAA Stock
10,000 ppm

HORME
rooting
powder
45

DIP 'N GROW
rooting kit
ASTORIA
NEW! Perfect for all plants



METHODOLOGY



DATA COLLECTION



- Number of rooted cuttings
- Number of roots per cutting
- Length of 3 roots per cutting



RESULTS AND DISCUSSION

- Summarize data

Auxin	Root number					Root length (mm)					total root number	total root length (mm)	Mean Root number	Mean Root length (mm)	Root Index Number * Length
	1	2	3	4	5	1	2	3	4	5					
KIBA 5000	7	8	12	8	11	12	15	15	21	24	46	87	10	15	150
KIBA 10000	8	9	6	9	12	10	31	19	27	24	44	111	18	5	90
Rootone	15	12	6	8	16	21	18	23	20	18	57	100	25	10	250
KNAA 5000	10	10	10	11	11	10	10	8	13	8	52	49	20	4	80
KNAA 10000	9	13	12	5	15	13	21	53	14	12	54	113	17	8	136
Hormodin	15	9	13	12	11	33	32	27	22	26	60	140	6	4	24

Discuss effects of auxin treatment on rooting percentages, root number, and root length

