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INFORMATION REQUIREMENTS FOR AN OPERATIONAL FERTILIZATION PROGRAM

PURPOSE

- REAFFIRM OBJECTIVES IN SUPPORTING CO-OP RESEARCH ON FOREST FERTILIZATION
- IDENTIFY KEY INFORMATIONAL NEEDS OF COOPERATORS
- PROVIDE DIRECTION FOR ANALYTICAL ACTIVITIES CONDUCTED BY U OF I
- DISCUSS OPTIONS FOR OPERATIONAL FERTILIZATION PROGRAM EVALUATIONS

WHY ARE WE SUPPORTING CO-OP RESEARCH IN FOREST FERTILIZATION?

- PRIMARY REASON: OBTAIN "ECONOMY OF SCALE" BENEFITS RESULTING FROM COMBINING RESOURCES AND EXPERTISE IN A RESEARCH EFFORT DESIGNED TO EVALUATE RESPONSE OF MANAGED DOUGLAS-FIR TO NITROGEN APPLICATIONS THROUGHOUT THE INLAND EMPIRE REGION.

  RESULTS OF THIS EFFORT SHOULD PROVIDE THE BIOLOGICAL BASIS FOR EACH COOPERATOR TO JUSTIFY OPERATIONAL FERTILIZATION PROGRAMS.....IF WARRANTED.....

- OTHER REASONS:

1.
2.
3.
4.
5.

QUESTION:

GIVEN THE GENERALLY "POSITIVE" RESPONSE OF CONIFEROUS FORESTS TO NITROGEN AND THE EXISTING DATA SUPPORTING THIS TREND IN THE REGION -- WHY HAVE WE NOT BEEN ABLE (OR NOT ATTEMPTED) TO INITIATE OR SUSTAIN OPERATIONAL FERTILIZER PROGRAMS?

COOPERATOR	LAND BASE (ACRES)	FERTILIZED ACRES (%)
IDAHO DEPT. LANDS	600,000	<1
CHAMPION	600,000	0
POTLATCH	615,000	3
INLAND EMPIRE PAPER	85,000	0
DEPT. NATURAL RESOURCES	400,000(?)	0
BOISE CASCADE	2,200,000	0
BIA-FLATHEAD	400,000	0
LONGVIEW FIBER	80,000	0
USFS	?	?
TOTAL	4,980.000	

RESPONSE:

WE HAVE NOT INITIATED AN OPERATIONAL FERTILIZATION PROGRAM BECAUSE:

- LACK OF SUFFICIENT RESPONSE DATA
  (WHAT IS SUFFICIENT?)

- LACK OF CAPITAL - $

OTHER REASONS:

-
-
-
-
-

CLOSER LOOK -- HOW VALID ARE THESE?

LACK OF RESPONSE DATA

- BASIS FOR INITIATING IFTNC
- VALID FOR MUCH OF REGION
- HAS AND WILL ALWAYS BE INCOMPLETE
- WILL CONTINUE TO IMPROVE - IFTNC
- MOST OFTEN POORLY DEFINED -
  - BASAL AREA, HEIGHT, DIAMETER
  - VOLUME (BD. FT. CU. FT., WHOSE EQUATION)
  - GROSS, NET
- LACK OF CORRELATION BETWEEN RESPONSE & STAND/SITE ATTRIBUTES

CAPITAL

- HAS AND ALWAYS WILL BE LIMITED!
- ALLOCATION HAS AND WILL BE BASED ON ECONOMIC CONSIDERATIONS
- FERTILIZATION HAS AND WILL CONTINUE TO COMPETE WITH OTHER ACTIVITIES

IN ADDITION

WHAT ABOUT - - - - -

EXTERNAL PRESSURES

- COMPETITION WITH HIGH FRONT END INVESTMENT ACTIVITIES - ARTIFICIAL REGENERATION
- ALLOCATION OF CAPITAL IMPACTED BY LEGAL REQUIREMENTS - FPA (REFORESTATION)

EXTRAPOLATION OF RESULTS - OFTEN OVERLOOKED OR OVERESTIMATED

- COOPERATORS' ABILITY TO INTEGRATE RESEARCH RESULTS WITH "IN-HOUSE" GROWTH FORECASTING MODELS AND MORE IMPORTANTLY INVENTORIES

  (I.E., HOW MANY ACRES OF RESPONDING STANDS DO I HAVE?)

RELEVANT QUESTION REALLY IS:

IF SILVICULTURE DOLLARS WERE AVAILABLE, COULD I "ADEQUATELY"[1/] EVALUATE THE BENEFITS OF FERTILIZATION GIVEN THE ANALYSIS RESULTS PROVIDED BY THE CO-OP?

IF NOT - WE ALL HAVE A PROBLEM!

IF NOT - WE HAD BETTER BEGIN IDENTIFYING OUR NEEDS - ASAP

IF NOT - WE CANNOT ACHIEVE OUR PRIMARY OBJECTIVE.

1/ DEFINED AS THE BEST ESTIMATE GIVEN EXISTING INFORMATION

REQUIREMENTS FOR ANSWERING THE QUESTION:

FIRST - IDEA OR PLAN AS TO HOW FERTILIZATION MIGHT BE EVALUATED:

(HOW)

- ACTIVITY -VS- PROGRAM ANALYSIS
- PROCEDURES FOR IDENTIFYING CANDIDATES
  - INVENTORY SCREENING
- METHODS FOR PREDICTING RESPONSE
  - GROWTH MODEL
  - RESPONSE MODEL

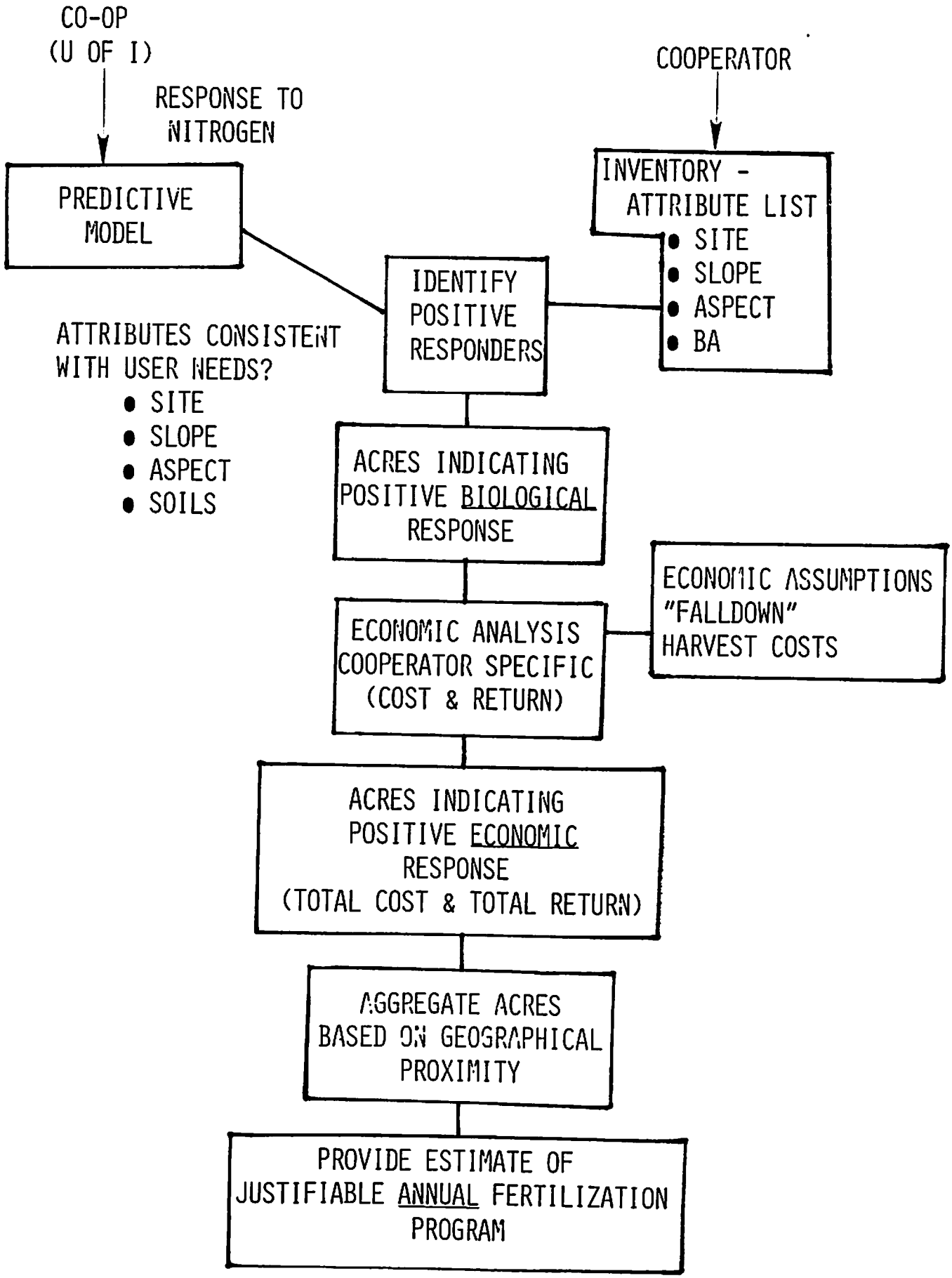
SECOND* - IDENTIFY SPECIFIC INFORMATION REQUIREMENTS:

(WHAT)

- RESPONSE
  - INSTALLATION -VS- REGION AVERAGE
  - HOW ANALYZED AND REPORTED
    (BA, BD.FT., CU.FT., HGT, DIA, ETC.)
- ATTRIBUTES OF RESPONSE
  - STAND STRUCTURE INFORMATION
    (SPECIES, DENSITY, AGE, SIZE, VIGOR)
  - ENVIRONMENTAL/SITE
    (SITE INDEX, ASPECT, SLOPE, SOILS, ETC.)
- RELATED "TOOLS"
  - PREDICTIVE MODELS

*OF PRIMARY INTEREST TO CO-OP -- ALLOWS RESULTS TO BE TAILORED TO THE USER!!

EXAMPLE - PROGRAM LEVEL



EVALUATION OPTIONS (HOW)

1/

2/

3/

SPECIFIC INFORMATION (WHAT)

MEASURES OF RESPONSE - (BASAL AREA, VOLUME, HEIGHT, ETC.)

CONDITIONS FOR RESPONSE - (SITE, ASPECT, HABITAT, SOIL, ETC.)
(OR LACK OF RESPONSE)

FORECASTING RESPONSE - (PREDICTIVE MODELS, ATTRIBUTES OF IMPORTANCE)

DURATION OF RESPONSE -

IFTNC IS CURRENTLY PROVIDING:

RESPONSE	-	BASAL AREA
CONDITIONS FOR RESPONSE	-	STAND AND SITE CHARACTERISTICS
FORECASTING RESPONSE	-	(FOR DOUGLAS-FIR)
BASAL AREA RESPONSE (SQ.FT./AC)	=	(TREATMENT PARENT MATERIAL SOIL DEPTH ASH DEPTH SITE INDEX SLOPE ASPECT BASAL AREA)

WHAT SHOULD IFTNC FOCUS ON IN FUTURE?

1. HOW IMPORTANT IS VOLUME RESPONSE?

   UNITS - BD.FT., CU.FT., HGT., DIA.

2. FORECASTING RESPONSE - WHAT VARIABLES HAVE OPERATIONAL UTILITY?

3. HOW IMPORTANT IS DURATION OF RESPONSE?

4. HOW IMPORTANT IS INFORMATION ON OTHER SPECIES (I.E., PP, GF)?

5. DO YOU NEED RESPONSE PREDICTED ON A TREE-BY-TREE BASIS OR STAND AVERAGE?

6.

PARTING COMMENTS

1. NEARLY 1.6 MILLION ACRES FERTILIZED WEST COAST. ANTICIPATING 40% OF ALL PLANTATIONS FERTILIZED.
   → TRENDS AND MAGNITUDES OF RESPONSE FOR I.E. DOUGLAS-FIR SIMILAR.

2. ABILITY TO UTILIZE RESEARCH RESULTS IN OPERATIONAL SETTING WILL IMPACT OPERATIONAL FERTILIZATION JUSTIFICATION.

3. BENEFITS DERIVED FROM COOPERATIVE RESEARCH CAN ONLY BE REALIZED IF USED IN THE COOPERATOR'S DECISION PROCESS.

4. CO-OP CANNOT TAILOR RESULTS TO OUR NEEDS UNLESS THESE NEEDS ARE IDENTIFIED (SPECIFICALLY).

5. PROFITABILITY OF FERTILIZATION MUST BE DETERMINED BY EACH COOPERATOR.

6. FERTILIZATION AND THINNING ARE THE ONLY TREATMENTS AVAILABLE TO INCREASE GROWTH AND/OR VALUE OF EXISTING GROWING STOCK.