

# FFT Fertilization: ROI Analysis with TIPSY-FAN\$IER



Ministry of  
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Operations

Steve Stearns-Smith, RPF  
Stearns-Smith & Assoc.

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# Background

- Branch has developed FFT ROI procedures using GY estimates from TIPS Y.
- Before 2013, a custom Excel app was used for the economic analysis.
- In 2013, it switched to FAN\$IER, new economic analysis software linked with TIPS Y ver 4.3 (and newer).

# Existing ROI Resources

<http://lbis.forestpracticesbranch.com/LBIS/node/874>

## FFT ROI Website contains:

- TIPS Y download link (includes FAN\$IER)
- *Two tutorial videos*
- **PDF: Using TIPS Y 4.3 and FAN\$IER in FFT ROI Calculations**  
Site rehab focus, but same basic principles.  
Some fertilization guidance on last page.

# Adapting FFT ROI Procedures

## From PDF:

## Using TIPSYS 4.3 and FAN\$IER in FFT ROI Calculations

*The same basic procedures apply to fertilization:*

- Step 1:** Produce TIPSYS runs for two regimes
- Step 2:** Send both runs to FAN\$IER
- Step 3:** Configure both regimes in FAN\$IER
- Step 4:** Check ROI results in the Compare Tab

# Step 1: Produce Two TIPSY Runs

- Fert is an “Existing Stand Treatment Scenario” in the FFT ROI doc.
- Create two TIPSY regimes for the stand:
  - Step 1a: **Base-case** (without fertilization)
  - Step 1b: **Treated-case** (with fertilization)
- Refer to companion videos and TIPSY Help for more info on using TIPSY.

# Step 1a: Base Case (w/o fert)

The Goal: TIPSYS inputs (stand establishment settings) chosen to best approximate current stand conditions (from a stand exam?).

- This is an iterative (trial and error) process.
- Start with knowns, e.g., regen method, species, initial density, genetics, thinnings, etc. OAFs ~1.0 for healthy, fully-stocked stands with no NP.
- Can also try TIPSYS's Existing Stand Option as a first approximation -- via, Stand Specs – Density (or PCT)
- Further modify inputs, as needed, using professional judgement based on current species comp and stem distribution; relative crop tree dominance, etc, etc.
- When satisfied, SAVE (and name) the TIPSYS Base Case file and send it to FAN\$IER (\$ icon).

## Step 1b: Treated Case (w/ fert)

- Add fert (only) to the Base Case  
TIPSY Fert settings and associated responses:
  - **Timing: age(s)**
  - **Effectiveness (%)**: ~80% adjusts for operational coverage/rate inconsistencies vs. default responses based on carefully hand-fertilized research plots.
  - Default responses models (last updated in 2004) reflect ministry research.
  - Users can also create, save, and share custom response models for scenarios outside the defaults.
- **Save-As** (rename) the TIPSY Treated Case file and send FAN\$IER.

# TIPSY Fertilization Defaults

## All the default response models in TIPSY ver 4.3:

Default rates by spp; response varies by spp, SI, and age.

- Fdc 225kg N/ha
- Ss 250kg N + 100kg P/ha (uses Fdc response)
- Pli 200 kg N (+ 50kg S/ha where deficient; for 150 kg N, could reduce efficiency by 25%, i.e., to 60%)
- Sw (Se,Sx) 200kg N/ha
- Fdi 200kg N/ha (response in ICH only)
- All others no response

Volume response via linear ht-growth increases over 10yrs. To view default response models (or create custom models for any species/rate), select Fertilization Response in Species Specs. See TIPSY Help for more details.



# TIPSY Demo Time

Brief live demo of TIPSY.

Also see video demos on FFT ROI website.

## Step 3: Configure FAN\$IER

Configure each regime on the main screen:

- Follow FFT ROI doc.
- **Exception: Harvest Age**
  - Select the same expected harvest age (e.g., 50 yrs) for both regimes, based on best available information from local sources: Type 4 Silviculture Strategies, planning staff, etc.
- Set “**Age at base year**” = fert age for both regimes to “ignore sunk costs”.
- On treated case **Cost Tab**: enter fert cost under “**Fertilization**”. Leave all other costs at defaults.

## Step 4: Check ROI in Compare Tab

Use “Send to Compare” button to send each configured regime to the Compare Tab.

### In the Compare Tab:

- Confirm Base Case is Column 1; Treated Case is Column 2 (switch if necessary)
- If **FFT Incremental IRR** does not appear (just above Harvest Benefits) select it from the main EDIT Menu.

## Step 4: Check ROI (cont)

- **FFT ROI = FFT Incremental IRR**  
Calculated from the difference in costs and revenues between the two regimes, ignoring sunk costs.
- Minimum 2% ROI, unless timber supply or other resource values reflect a higher social priority.
- ROI analysis not expected on every site, only when significantly different conditions are encountered.
- Use TIPSY-FAN\$IER for ROI only when TIPSY is appropriate (~single-spp, ~response, etc).

# FAN\$IER Demo Time

Brief live demo of FAN\$IER.

Also see video demos on FFT ROI website.

**That's it. Questions?**

