

LOAD CHASER (1_0)

Production Analysis for Logging Businesses



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Overview

The Load Chaser program was developed as a research tool by the Wood Supply System Group at Mississippi State University, and restructured to be useful to logging contractors in:

- Tracking the daily production of the firm;
- Simple reconciliation of sale tickets with settlement sheets;
- Providing running totals of production by date, tract, or market;
- Constructing run charts showing variation in daily production;

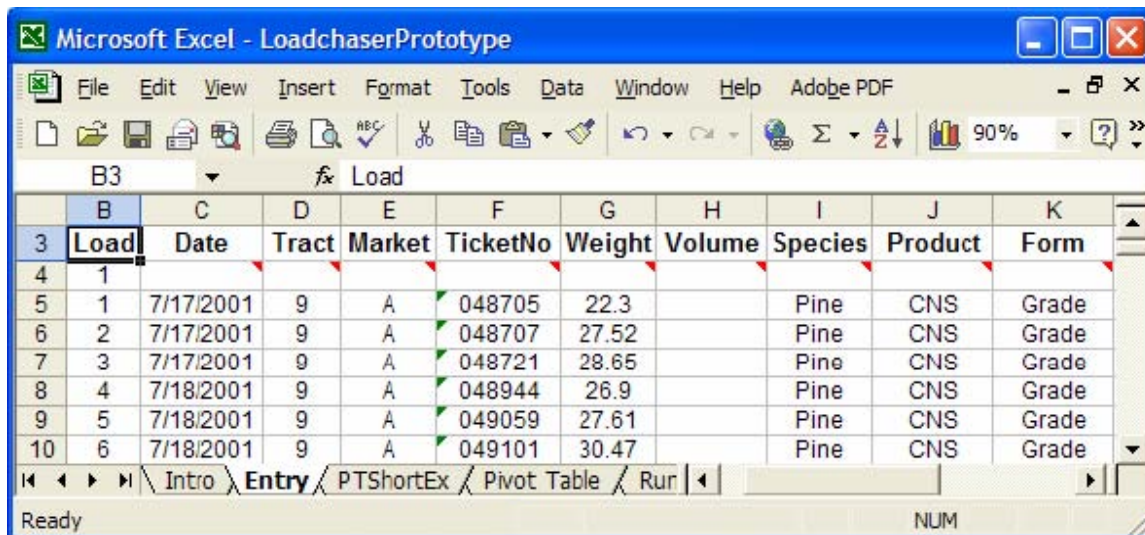
It is an Excel Spreadsheet program designed to be easy to use and easy to understand.

The Load Chaser program uses information obtained from scale tickets and delivery receipts to organize and track production. Production can be sorted by load, date, tract market, ticket number, weight, volume, species, and product. Using Excel, this information can then be used to create pivot tables that summarize production by day or tract, run charts to show daily production variability, and Cusum charts to show how far ahead or behind of a production goal the business is.

This **prototype** program is being offered to you at no cost in appreciation for your cooperation in our ongoing work at Mississippi State University. It is still a work in progress, and improvements and enhancements are still under development.

LOAD CHASER INPUT DATA

All that is needed is to record your load ticket information in an Excel Spreadsheet. A typical load ticket may contain some or all of the following data:



| | B | C | D | E | F | G | H | I | J | K |
|----|------|-----------|-------|--------|----------|--------|--------|---------|---------|-------|
| 3 | Load | Date | Tract | Market | TicketNo | Weight | Volume | Species | Product | Form |
| 4 | 1 | | | | | | | | | |
| 5 | 1 | 7/17/2001 | 9 | A | 048705 | 22.3 | | Pine | CNS | Grade |
| 6 | 2 | 7/17/2001 | 9 | A | 048707 | 27.52 | | Pine | CNS | Grade |
| 7 | 3 | 7/17/2001 | 9 | A | 048721 | 28.65 | | Pine | CNS | Grade |
| 8 | 4 | 7/18/2001 | 9 | A | 048944 | 26.9 | | Pine | CNS | Grade |
| 9 | 5 | 7/18/2001 | 9 | A | 049059 | 27.61 | | Pine | CNS | Grade |
| 10 | 6 | 7/18/2001 | 9 | A | 049101 | 30.47 | | Pine | CNS | Grade |

Obviously, this is just part of two days worth of logging, but it is easy to look at and see

what happened. However, a business can easily have thousands of these tickets per year. Some simple analysis of this data is necessary to get a picture of the business performance from thousands of tickets.

We have developed a simple data entry sheet that should help you enter the data as quickly as possible.

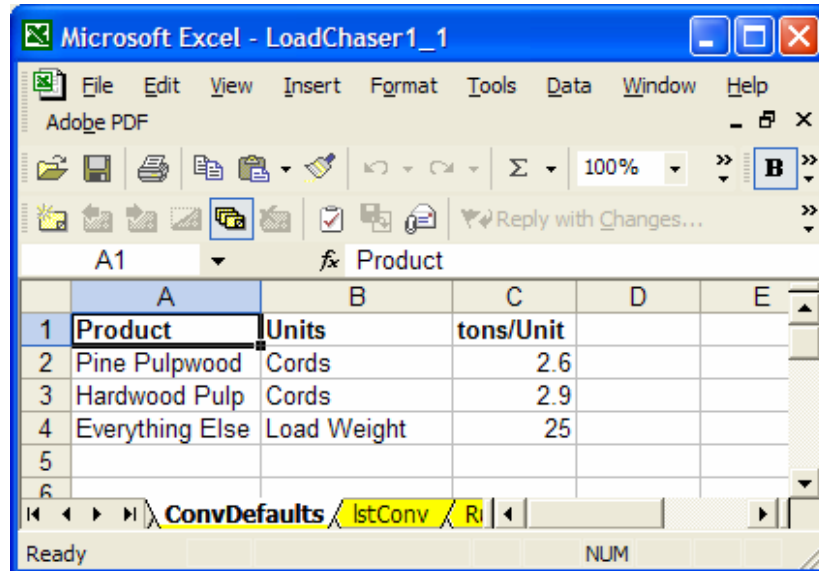
The first time you start a data entry session, all the fields (white boxes) will be blank. You can move between fields using the “TAB” key on your keyboard or by using the mouse. The Fields or boxes with a Down arrow are dropdown lists that list the available options for that entry. If the option you need is not listed, you can type in the information and the list will be updated. Note that the fields in boldface type (Date, Volume, and Units) are required for each entry. The current data entry fields are:

| | |
|----------------|---|
| Ticket Number | The delivery ticket number (recommended) |
| Date | The date the load was delivered. Must be entered in mm/dd/yyyy format and be after 1980. (Required) |
| Market | The mill or other location where the wood was delivered (Optional) |
| Tract | Tract name, number or other description (Optional) |
| Species | The Wood Species on the load (Required) |
| Product | The type of product delivered such as pulpwood or logs (Optional) |
| Form | The product form such as tree length or double bunk (Optional) |
| Volume | The delivered volume. Enter the number in this box and the “units” in the next box. For example if you load weighed 25 tons just enter 25. If |

Units

the load was contained 10 cords, enter 10. **(Required)** Tons, Cords, MBF, etc. Some conversion routines (cords to tons) are included, others still need to be developed (MBF to Tons). As an intermediate step, the program will assume that a load weighs 25 tons if there is no other conversion available.

Default conversion factors for cords and average load weight can be changed on the “ConvDefaults” worksheet by changing the appropriate value in Column C. For example, if your conversion factor for pine cords is 2.75 tons per cord, simply type 2.7 in cell c3.



If two or more products or grades are mixed in the same load but scaled separately, enter each product or grade separately, using the same Ticket Number, Date, etc., but changing the volume, species, or product form as needed.

When you have entered all the information for a load, click on the “OK” button. This will transfer the information to the “Entry” worksheet. When you are finished entering data click on the “finish button. That will return you to the Menu worksheet.

ANALYSIS

You can generate several different kinds of reports once the data entry is complete. When you click on the “Create Pivot Chart and Pivot Tables” button will generate both the pivot tables and a run chart of daily production.

Pivot Tables

The easiest manipulation you can make is called a pivot table. This just summarizes the data, commonly by date and tract worked, in a form that is easier to understand. The following is an example of a pivot table created from 4 days worked in July 2001.

The screenshot shows a Microsoft Excel window titled "Microsoft Excel - LoadchaserPrototype". The interface includes a menu bar (File, Edit, View, Insert, Format, Tools, Data, Window, Help, Adobe PDF) and a toolbar with various icons. The active cell is A2. The pivot table is displayed in the following format:

| | A | B | C | D | E | F | G |
|----|---------------|--------|--------|-------------|---|---|---|
| 1 | | | | | | | |
| 2 | | | | | | | |
| 3 | Sum of Weight | Tract | | | | | |
| 4 | Date | 2 | 9 | Grand Total | | | |
| 5 | 7/17/2001 | | 78.47 | 78.47 | | | |
| 6 | 7/18/2001 | | 168.1 | 168.1 | | | |
| 7 | 7/19/2001 | | 201.76 | 201.76 | | | |
| 8 | 7/30/2001 | 142.44 | | 142.44 | | | |
| 9 | Grand Total | 142.44 | 448.33 | 590.77 | | | |
| 10 | | | | | | | |

The status bar at the bottom shows "Ready" and "NUM". The sheet tabs at the bottom are "Intro", "Entry", "PTShortEx", and "Pivot 1".

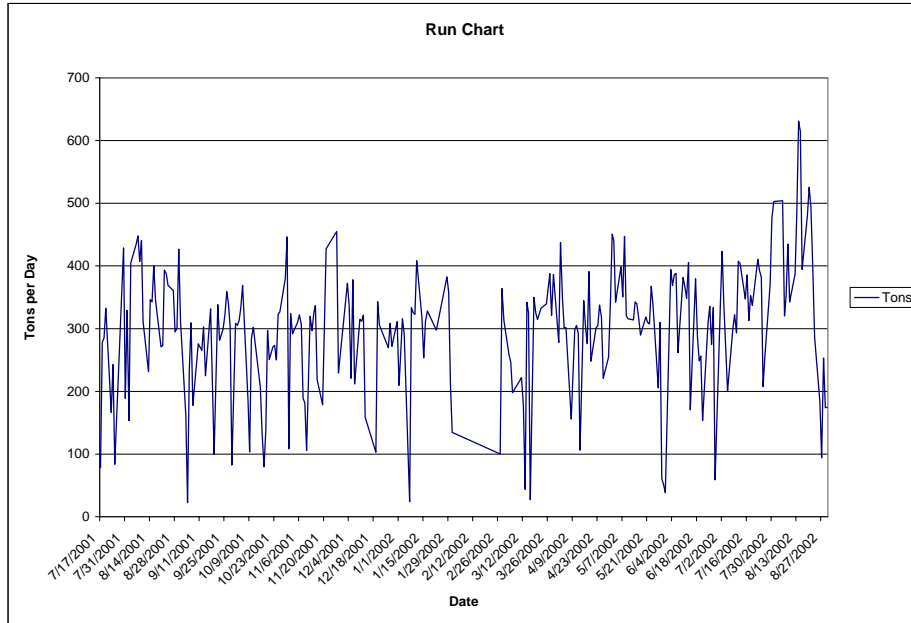
For July 17th a total of 78.47 tons was delivered from tract #9, roughly 3 loads. Extensions of the table can give a count of loads, the lightest load, the heaviest load, the average load weight, etc., by picking another sort variable from the list. The program also creates a pivot table of production by market (PivotDateMarket), in addition to the total production by date (PivotDate) and production by tract (PivotDateTract).

Other tables can be constructed using different data from the load tickets, such as total tons by Species, Product, Form, Market, or Ticket Number with just the click of the mouse.

Run Chart

A run chart is a classic method of production analysis. It shows the variation in production on a daily, weekly, or monthly basis. It can be built directly from the pivot table using the date and the tons delivered columns. The program builds a run chart of daily production. Note that it will not show those days where there were no deliveries!

This is a daily production run chart developed using 13 months of load ticket data.



Cusum

The Cusum chart, or cumulative sum of production for a time period, is based on weekly production minus a weekly production goal, and totaling the difference. We are currently developing the routines to generate these automatically. In this example we used a target production level of 1,350¹ tons per week. The target was subtracted from the actual weekly production and the difference added to give a cumulative variation—the number of tons ahead or behind of the production goal.

¹ We used the average weekly production as our “target” production level. You can use any target, such as the number of tons needed to break even as the goal.

Microsoft Excel - LoadchaserPrototype

File Edit View Insert Format Tools Data Window Help

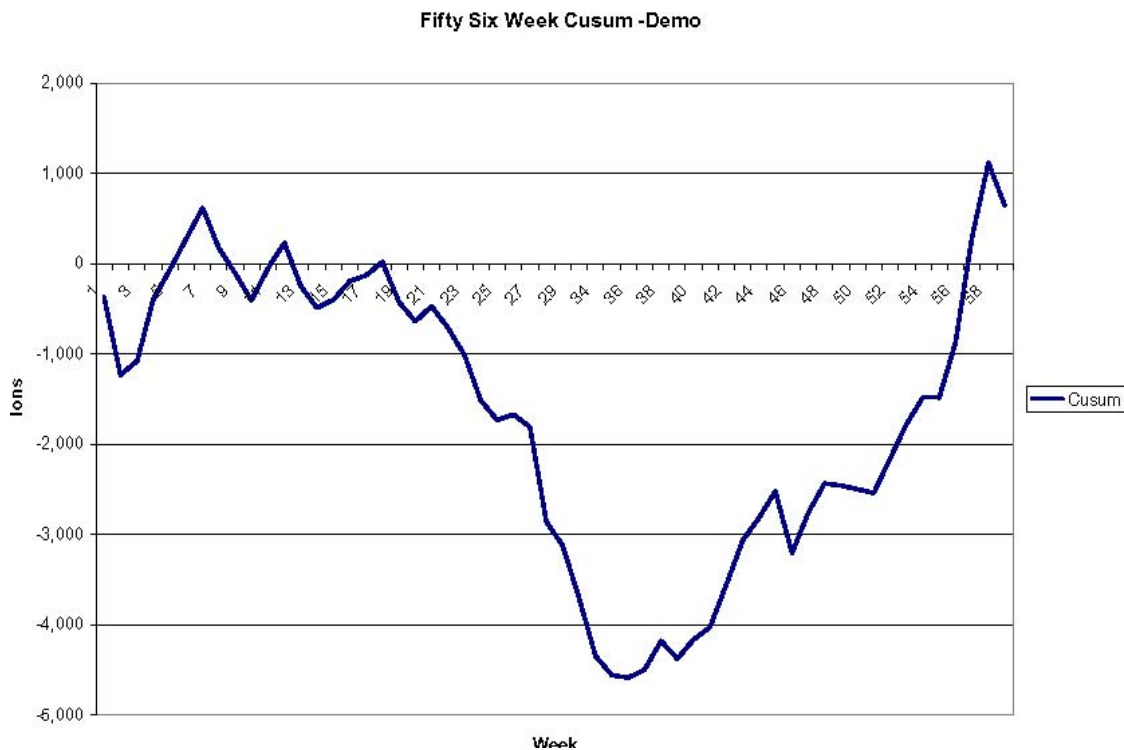
Adobe PDF

F5 fx

| | F | G | H | I | J | K |
|----|-------------|----------|---------|----------|--------|---|
| 5 | | | | | | |
| 6 | Sum of Tons | | Weekly | | | |
| 7 | Week | Total | Average | Variance | Cusum | |
| 8 | 1 | 974.4 | 1350 | -376 | -376 | |
| 9 | 2 | 492.572 | 1350 | -857 | -1,233 | |
| 10 | 3 | 1505.193 | 1350 | 155 | -1,078 | |
| 11 | 4 | 2040.742 | 1350 | 691 | -387 | |
| 12 | 5 | 1665.883 | 1350 | 316 | -71 | |
| 13 | 6 | 1694.154 | 1350 | 344 | 273 | |
| 14 | 7 | 1694.393 | 1350 | 344 | 617 | |

Ready NUM

The good, the bad, and the ugly of production variability can be shown graphically. For the first 19 weeks this contractor hovered around his target production level. Between week 20 and week 38 production fell, resulting in a “deficit” of close to 4,500 tons. From week 20 to the end of the year, production exceeded the target, allowing the contractor to “climb” out of the production hole.



As you can see from the chart, the target production goal of 1350 tons was not made too

many times throughout the 56 weeks.

AVAILABILITY

Load chaser is available to you free of charge. If you want to keep the program in house, we can help set it up and get you started. If you wish, and you have Excel available on your computer, we will assist you in setting up a data sheet that can be e-mailed to us for analysis.

Contact Information:

If you have any questions please contact:

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