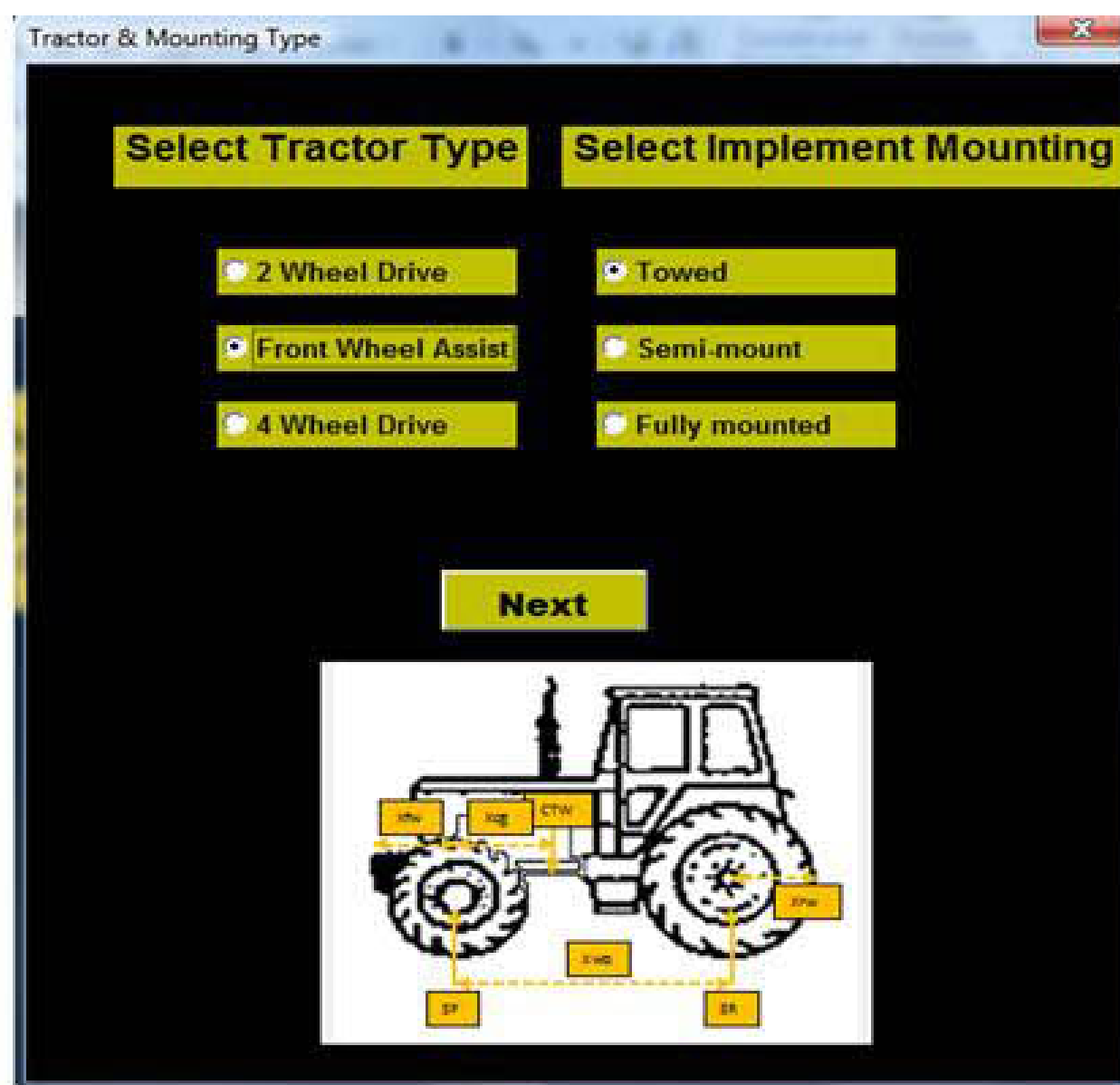


BALLAST



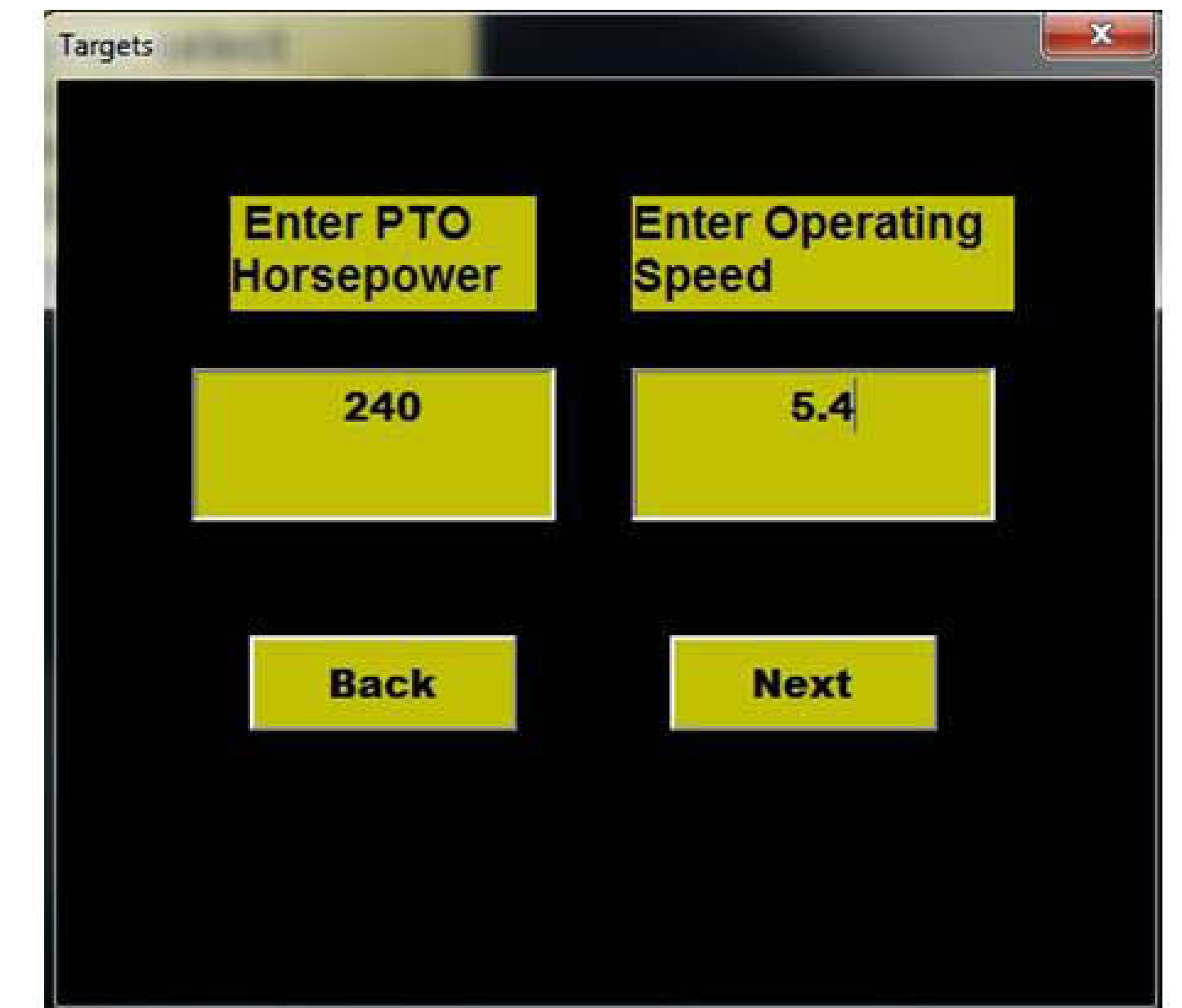
Step 1

Step 1

- Select the type of tractor to ballast and how the implement is mounted.

Step 2

- Enter in the PTO horsepower and how fast the tractor will be moving.



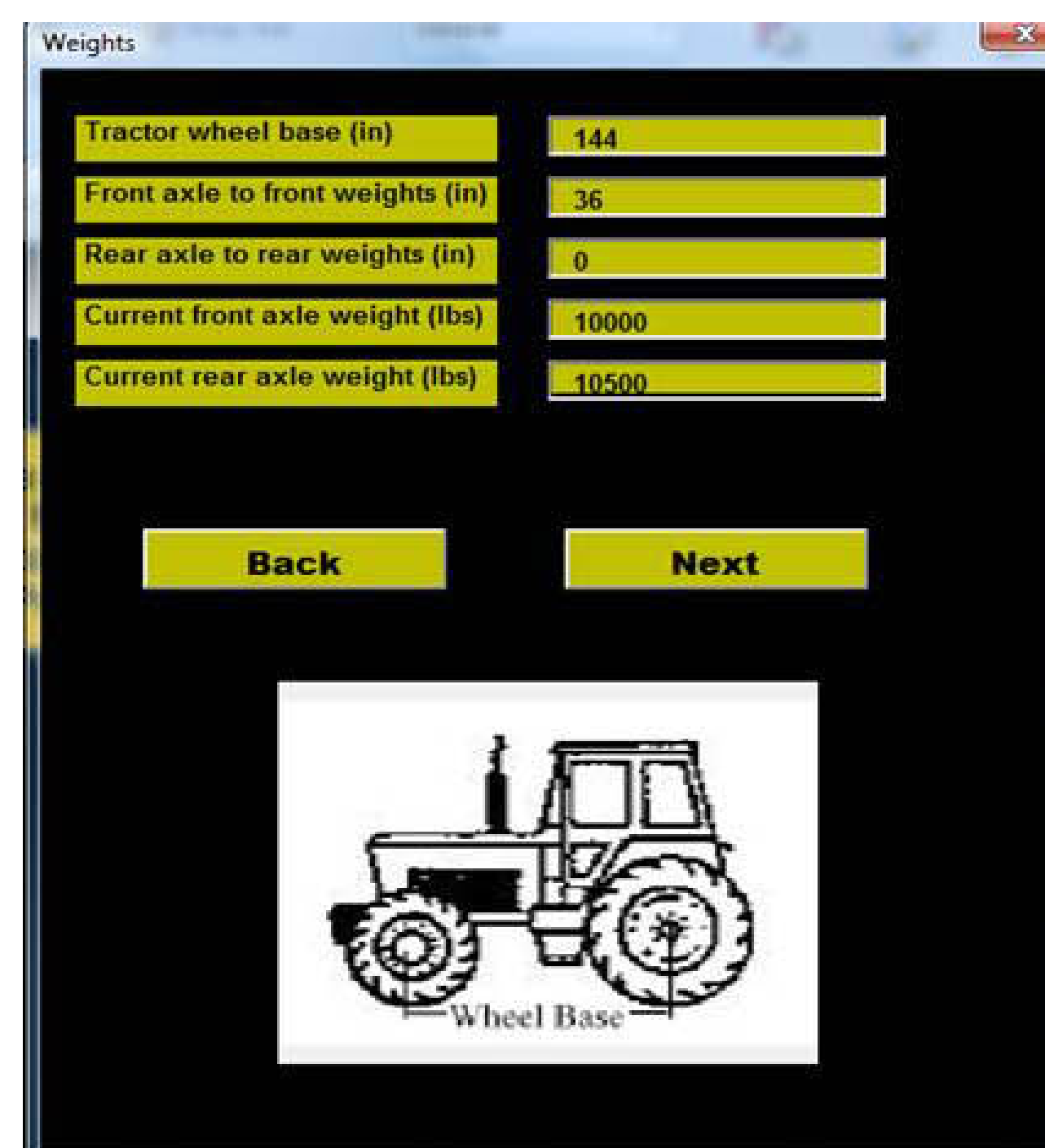
Step 2

Step 3

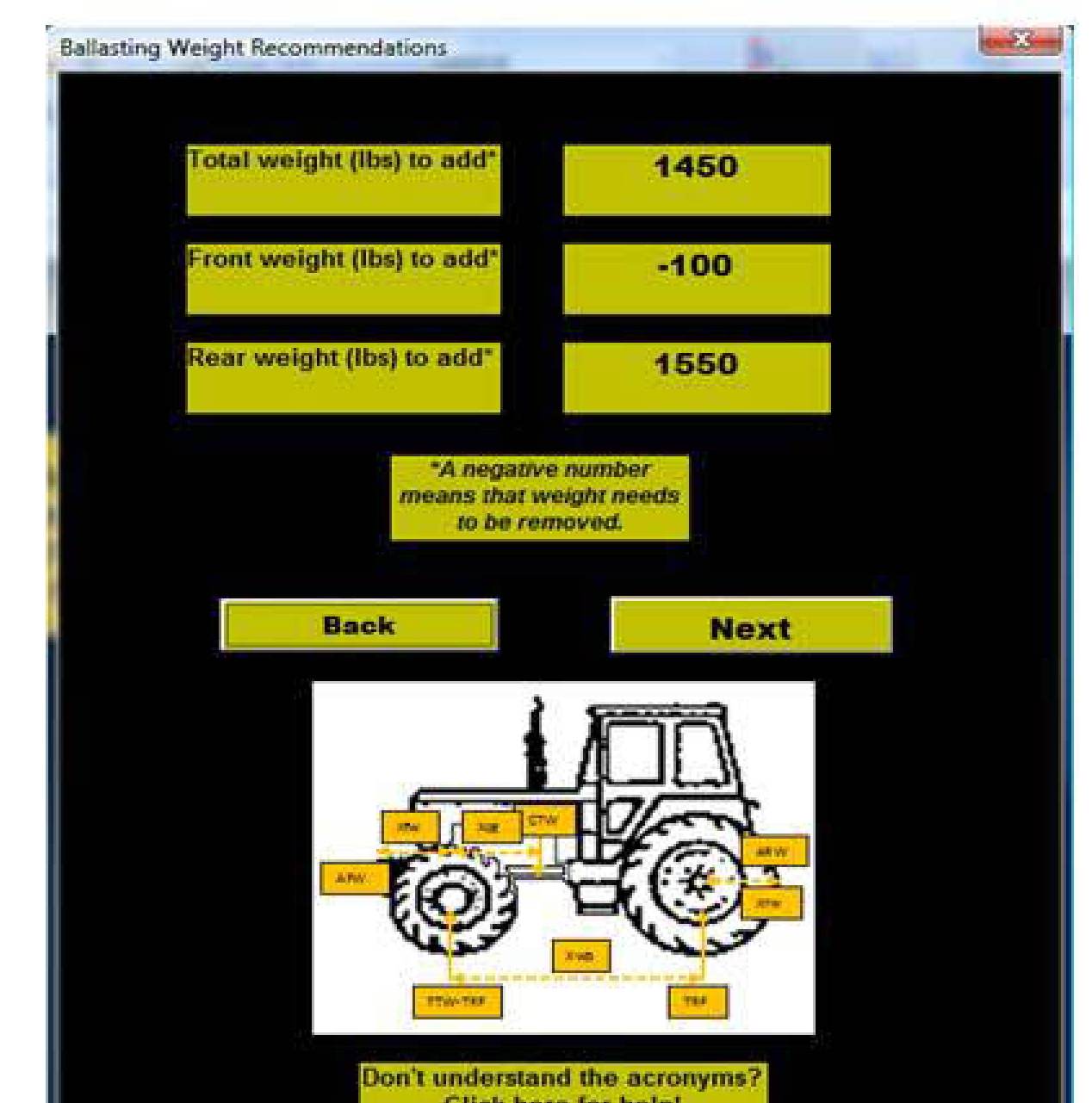
- Enter in the dimensions of the tractor and the total weight of the tractor including the ballast already on the tractor.

Step 4

- This screen shows how much ballast you should add to or remove from the tractor.



Step 3

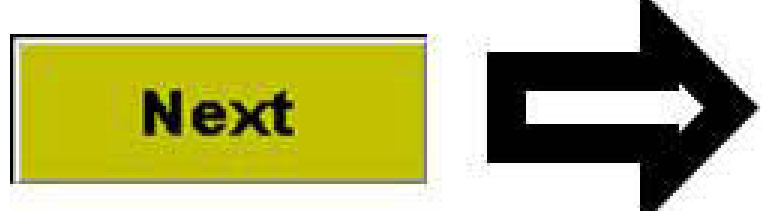


Step 4

BEHIND THE SCENES

```

Private Sub cmdNext_Click()
    If t2WD = True And iTowed = True Then
        Worksheets("part 1 -- targets").Range("B18").Value = 25
    ElseIf t2WD = True And ismount = True Then
        Worksheets("part 1 -- targets").Range("B18").Value = 30
    ElseIf t2WD = True And ifmount = True Then
        Worksheets("part 1 -- targets").Range("B18").Value = 35
    ElseIf tFWA = True And iTowed = True Then
        Worksheets("part 1 -- targets").Range("B18").Value = 40
    ElseIf tFWA = True And ismount = True Or ifmount = True Then
        Worksheets("part 1 -- targets").Range("B18").Value = 45
    ElseIf t4WD = True And ismount = True Or ifmount = True Then
        Worksheets("part 1 -- targets").Range("B18").Value = 60
    ElseIf t4WD = True And iTowed = True Then
        Worksheets("part 1 -- targets").Range("B18").Value = 55
    End If
    frmTargets1.Hide
    frmTargets2.Show
End Sub
    
```



- The button on the left is from the first screen of the ballast portion
- The text next to it is the code that is executed when it is clicked
- It consists of a large 'If... Then' statement that will find the correct value that changes depending on which options are selected
- The two lines before 'End Sub' will hide the first screen and show the second.

BALLAST AID & TIRE PRESSURE PROGRAM

ZACH DOUGHERTY, TYLER SHAW & NICK BARNARD

SPONSOR & ADVISOR: DR. DENNIS BUCKMASTER

ASM 495

OBJECTIVES

To create a user friendly program for farmers to use that will help them determine:

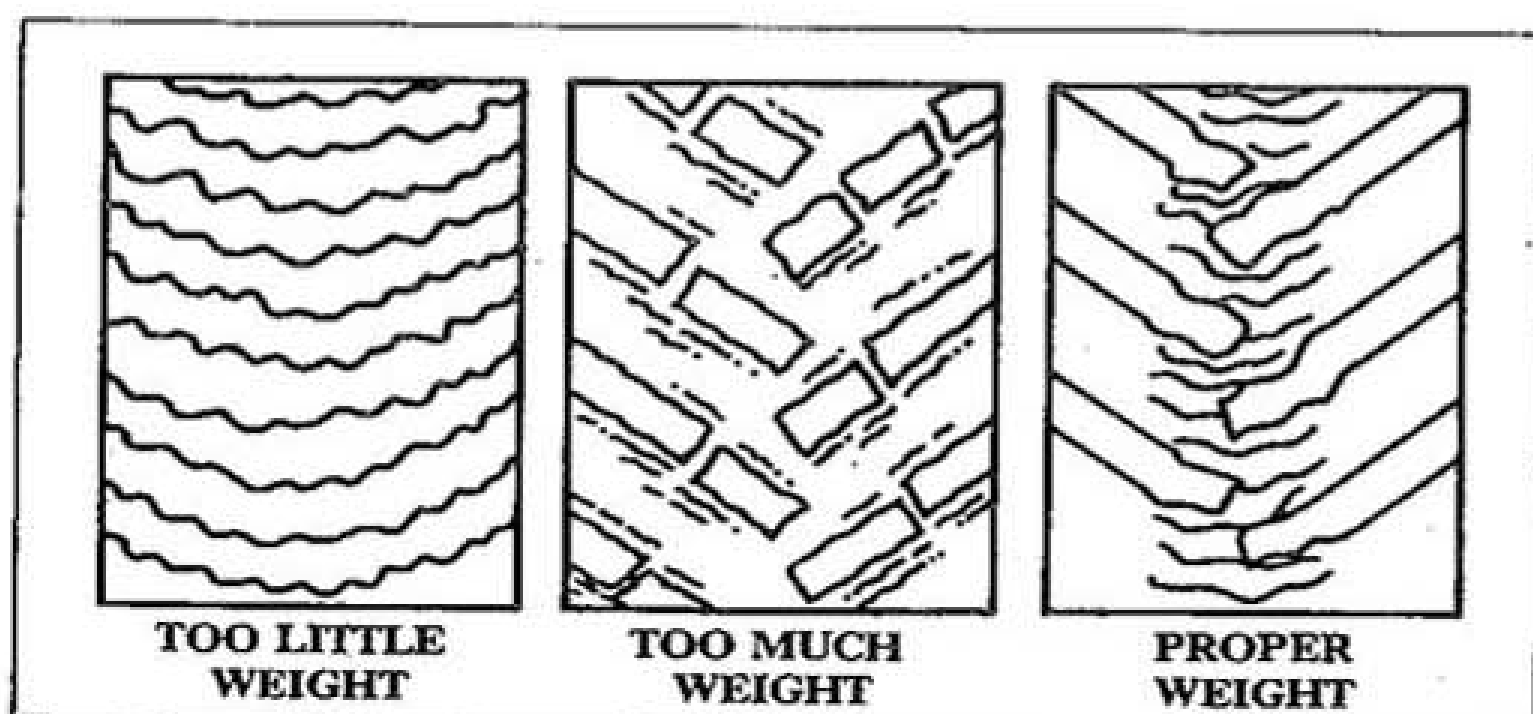
- How much weight should be added or removed from the tractor
- Proper tire inflation for the tires on the tractor

BALLAST

•Proper weight in the front and rear axles of a tractor improves traction by reducing wheel slip

-Reduced wheel slip results in more efficient operations, saving time and money

-Proper ballast also reduces wear and tear, saving on maintenance costs



Notice the effect on the lug marks a tractor leaves in the soil when the tractor is under, properly and over ballasted.

•Over-ballasting reduces flotation, wastes fuel, power, and increases soil compaction



Tractor Ballast

TIRE PRESSURE

•Proper tire pressure depends on the type and size of the tire as well as the load on the tractor

-It is best to have more pressure in the front tires for safer steering

-Less pressure in the rear tires allows for more traction

•Over inflating the tires cause an increase in wheel slip and tire damage

•If pressure is too low there will be an increased chance of tire sidewall damage, overheating, and premature tire failure

•Always ballast tractor before adjusting tire pressure

-The more load on a tire, the more pressure it should have

ACKNOWLEDGEMENTS

Dr. Buckmaster

Tire and Rim Association

Firestone Tires

ASAE Distinguished Lecture #27 By Frank M. Zoz and Robert Grisso

TIRE PRESSURE

Step 1

Step 2

Step 3

Step 1

- The first screen of the pressure portion allows you to enter new weight or use what was previously calculated

Step 2

- This screen is where you pick your tires
- The top boxes select the tire type
- The bottom boxes select the tire itself

Step 3

- The third screen displays the results
- The results are obtained from a table of possible pressure and load combinations
- The table below is an excerpt from one of the larger tables the program uses to calculate the solution
- Poor choices from the user will result in a poor answer from the program
 - Picking the wrong tire could result in tire pressures that are exorbitantly high or below zero

Radial Ply Symbol Marked Ag Tractor Drive Wheel Tires Tire Size	PSI kPa	6	8	10	12	14	16	18	20	22	24	26	28	Forecasted PSI	Per Tire Load	Total Load
		40	60	70	80	100	110	120	140	150	160	180	190			
12.4R46 SINGLES	1610	1930	2150	2400	2600	2830	3080	3300	3420	3640	3740	3960	4080	37	5000	10000
12.4R46 DUALS	1420	1700	1890	2110	2290	2490	2710	2900	3010	3200	3290	3480	3590	15	2500	10000
12.4R46 TRIPLES	1320	1580	1760	1970	2130	2320	2530	2710	2800	2980	3070	3250	3350	7	1666.67	10000
12.4R54 SINGLES	1760	2090	2400	2680	2910	3080	3420	3520	3740	3960	4180	4400	4540	32	5000	10000
12.4R54 DUALS	1550	1840	2110	2360	2560	2710	3010	3100	3290	3480	3680	3870	4000	12	2500	10000
12.4R54 TRIPLES	1440	1710	1970	2200	2390	2530	2800	2890	3070	3250	3430	3610	3720	5	1666.67	10000

BEHIND THE SCENES

- In addition to the code there are calculations performed within the tables
- The “Load” column is where the program will enter the load
- The “Per Tire Load” column is an intermediate calculation to determine the load per tire
- The “Forecasted PSI” column is where the solution is calculated using the Forecast function of Excel