WINQSB

M. en C. Eduardo Bustos Farías

DESCARGA DEL PROGRAMA

We will use WinQSB package as a computer-assisted learning tool to gain a good "hands-on" experience on concepts and techniques used in this course.

These labs experimentation will enhance your understanding of the technical concepts covered in this course.

The QSB is developed and maintains by Yih-Long Chang.

This software package contains the most widely used problem-solving algorithms in Operations Research and Management Science (OR/MS).

WinQSB Installation Instructions

1. Desempacar el archivo winqsb.zip
2. Buscar el folder C:/winqsbinstall
3. Abrir la carpeta Full y ejecutar setup.exe
4. Seguir las instrucciones de instalación

Computer Implementations with the WinQSB Package

- Use the LP/ILP module in your WinQSB package for two purposes: to solve large problems, and to perform numerical experimentation for understanding concepts we have covered in the LP and ILP sections.
- **Variable Type:** Select the variable type from the "Problem Specification" screen (the first screen you see when introducing a new problem); for linear programming use the default "Continuous" option.

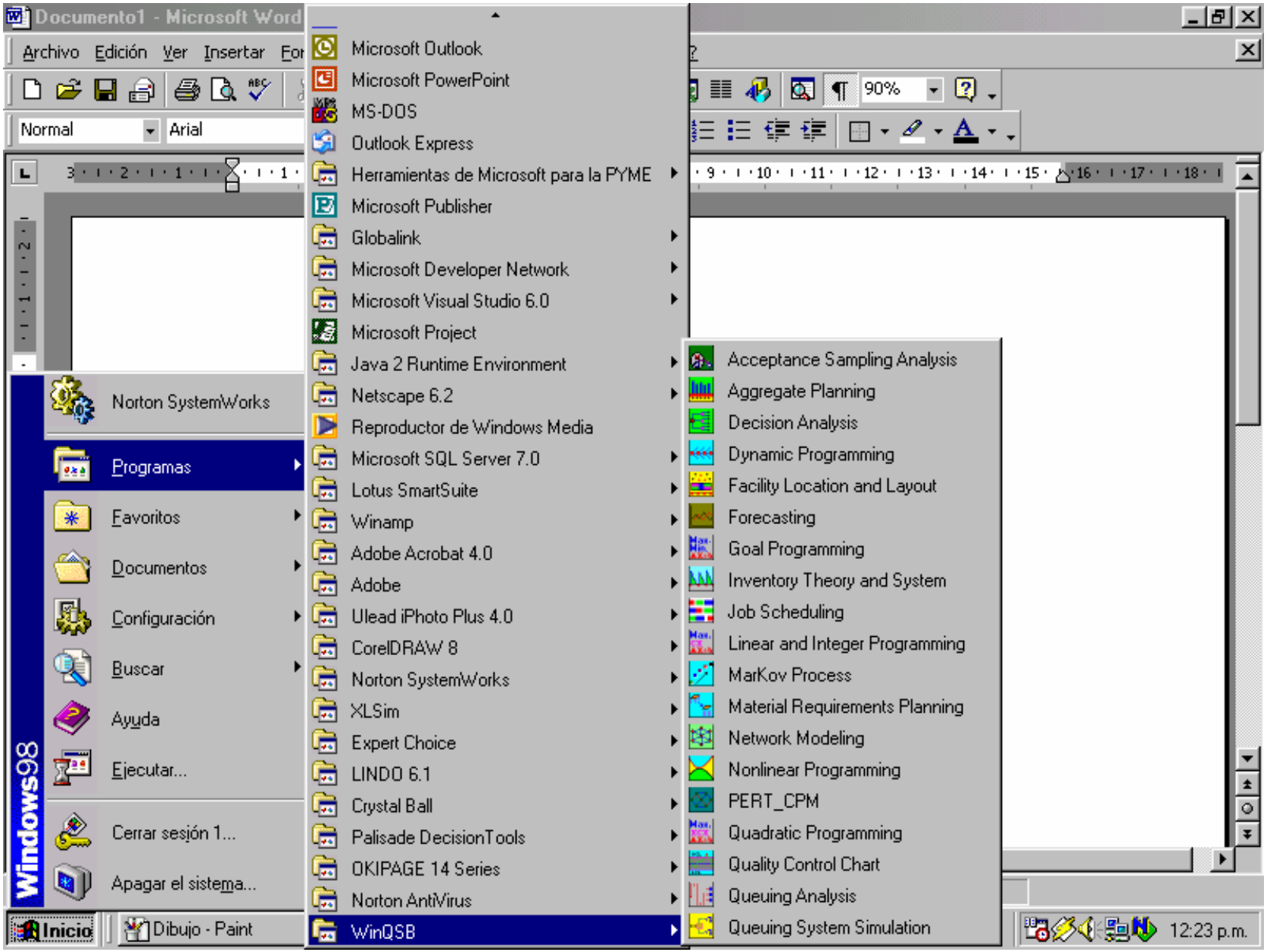
- **Input Data Format:** Select the input data format from the "Problem Specification" screen. Usually, it is preferred to use the Matrix format to input the data. In the Normal format the model appears typed in. This format may be found more convenient when solving a large problem with many variables. You can go back and forth between the formats, selecting the "Switch to the..." from the Format menu.

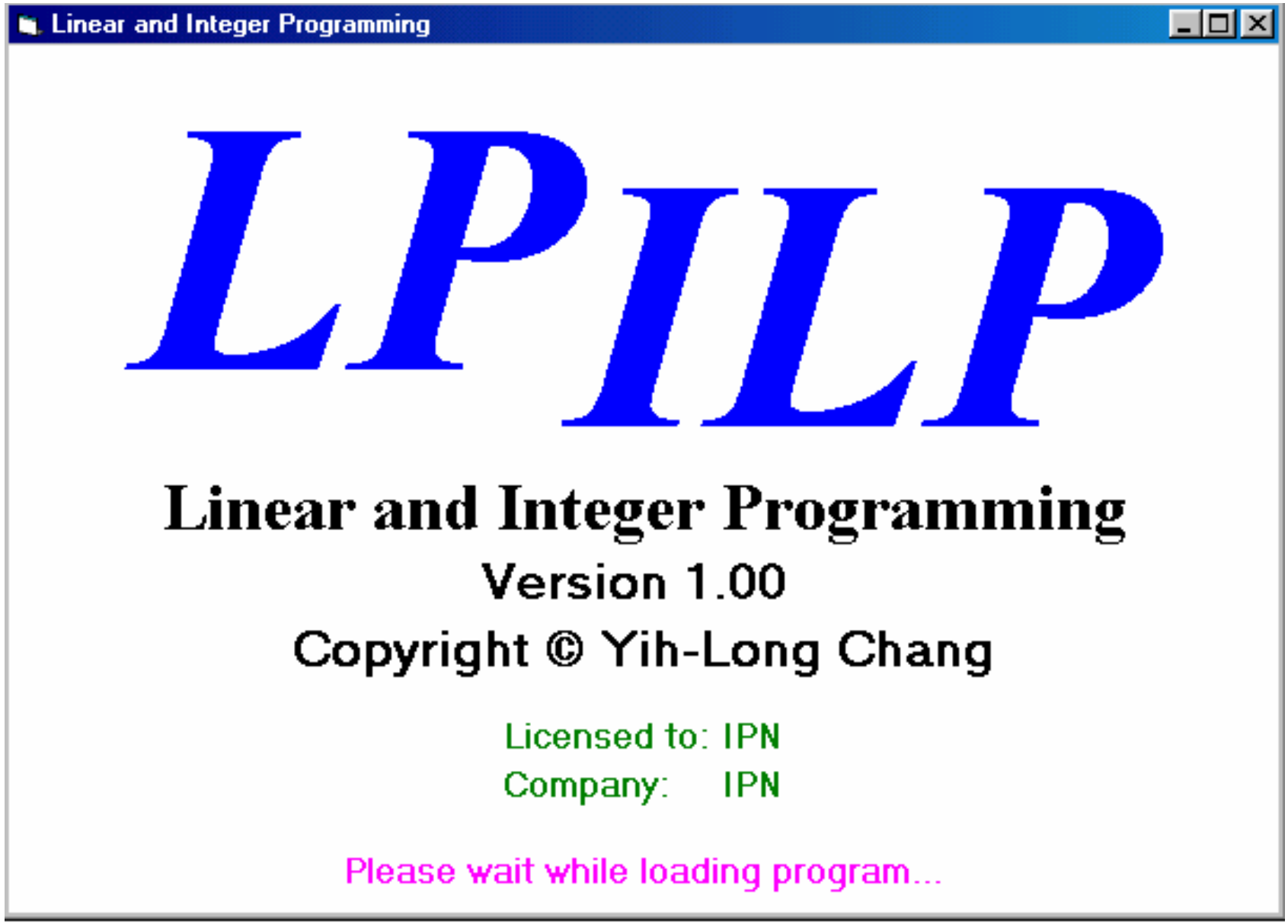
- **Variable/Constraint Identification:** It is a good idea to rename variables and constraints to help identify the context they represent. Changing the names of variables and constraints is done in the Edit menu.
- **Best Fit:** Using the best fit from the Format menu lets each column have its own width.

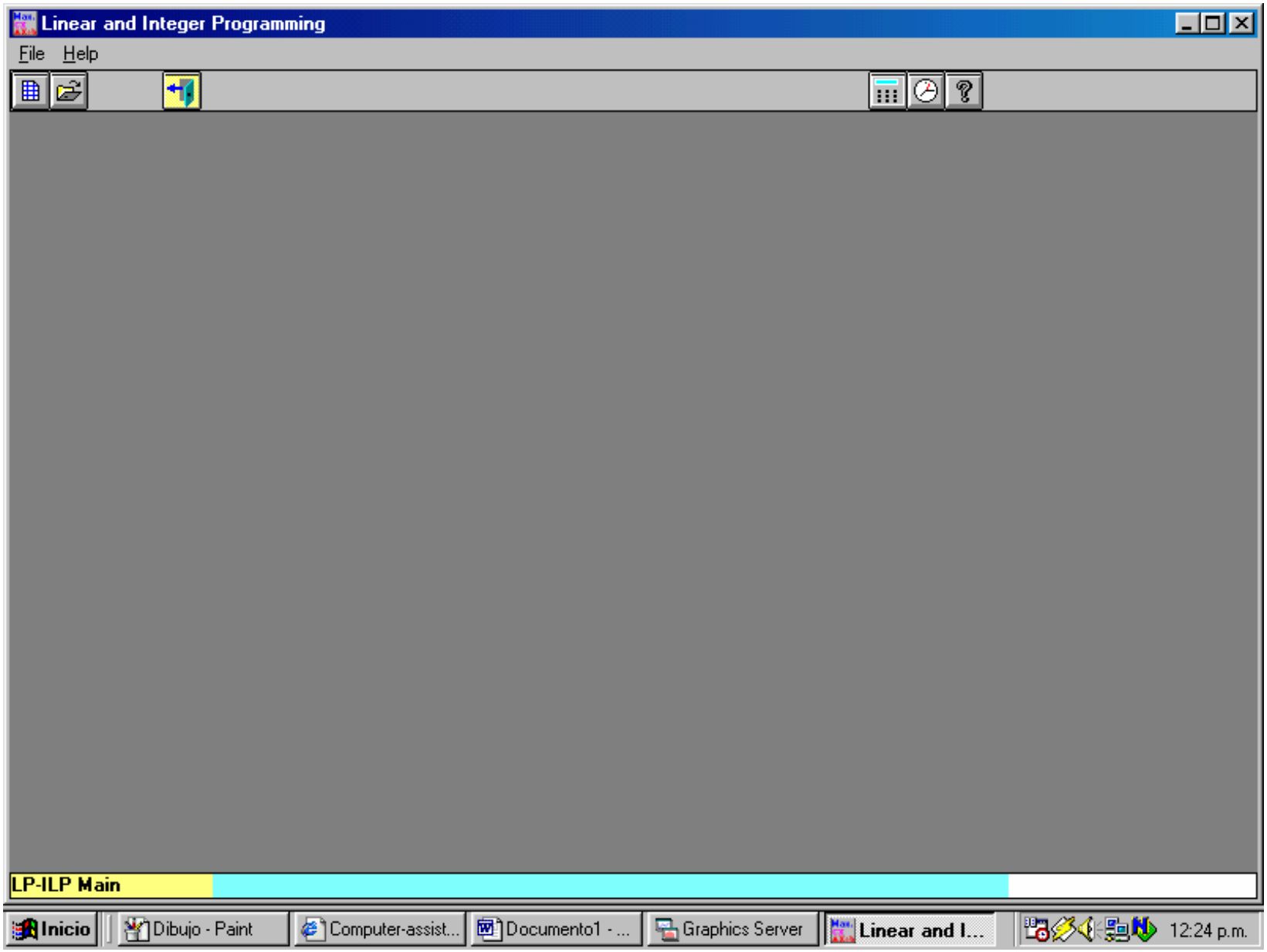
- **Solving for the Optimal Solution (if it exists):** Select Solve the problem from the Solve and analyze menu, or use the "solve" icon at the top of the screen. The run returns a "Combined Report" that gives the solution and additional output results (reduced costs, ranges of optimality, slack/surplus, ranges of feasibility, and shadow prices).
- **Solving by the Graphic Method:** Select the Graphic method from the Solve and Analyze menu (can only be used for a two-variable problem.) You can also click the graph icon at the top the screen. You can re-scale the X-Y ranges after the problem has been solved and the graph is shown. Choose the Option menu and select the new ranges from the drop down list.

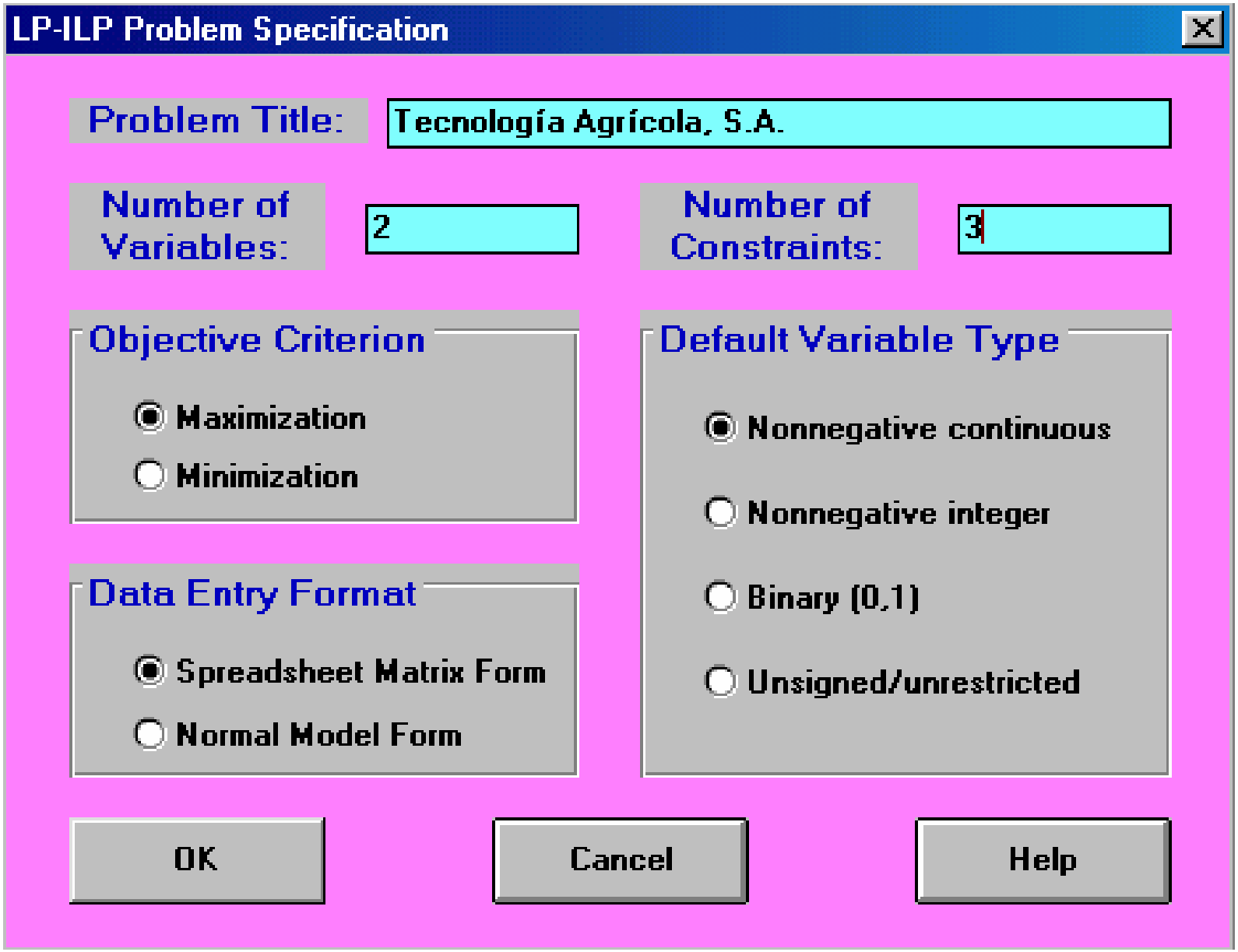
Alternate Optimal Solutions (if they exist): After solving the problem, if you are notified that "Alternate solution exists!!", you can see all the extreme point optimal solutions by choosing the Results menu and then select Obtain alternate optimal.

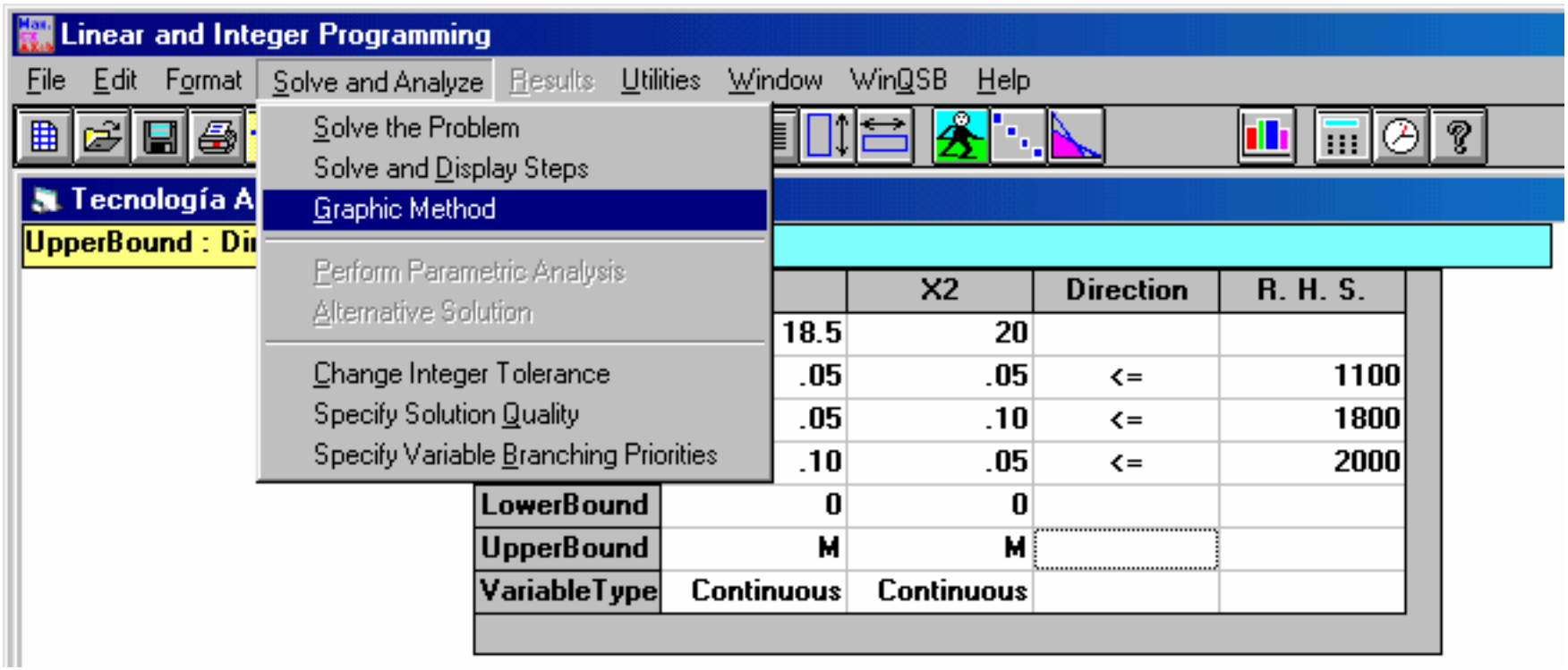
Paso a paso

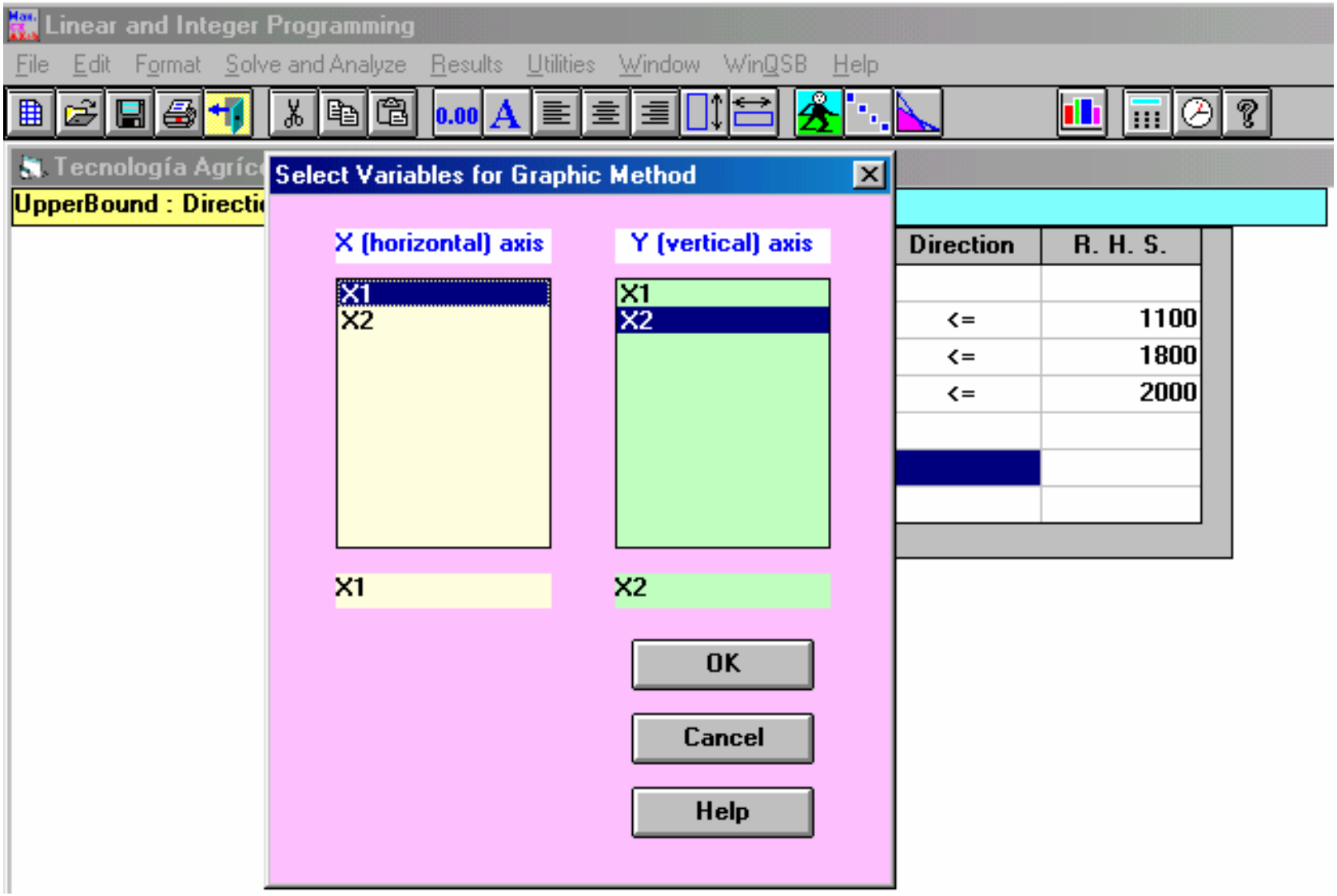

Documento1 - Microsoft Word
Archivo Edición Ver Insertar
Normal
Arial
90%
Norton SystemWorks
Programas
Favoritos
Documentos
Configuración
Buscar
Ayuda
Ejecutar...
Cerrar sesión 1...
Apagar el sistema...
Windows98
Inicio
Dibujo - Paint
Microsoft Outlook
Microsoft PowerPoint
MS-DOS
Outlook Express
Herramientas de Microsoft para la PYME
Microsoft Publisher
Globalink
Microsoft Developer Network
Microsoft Visual Studio 6.0
Microsoft Project
Java 2 Runtime Environment
Netscape 6.2
Reproductor de Windows Media
Microsoft SQL Server 7.0
Lotus SmartSuite
Winamp
Adobe Acrobat 4.0
Adobe
Ulead iPhoto Plus 4.0
CorelDRAW 8
Norton SystemWorks
XLSim
Expert Choice
LINDO 6.1
Crystal Ball
Palisade DecisionTools
OKIPAGE 14 Series
Norton AntiVirus
WinQSB
Acceptance Sampling Analysis
Aggregate Planning
Decision Analysis
Dynamic Programming
Facility Location and Layout
Forecasting
Goal Programming
Inventory Theory and System
Job Scheduling
Linear and Integer Programming
MarKov Process
Material Requirements Planning
Network Modeling
Nonlinear Programming
PERT_CPM
Quadratic Programming
Quality Control Chart
Queuing Analysis
Queuing System Simulation
12:23 p.m.

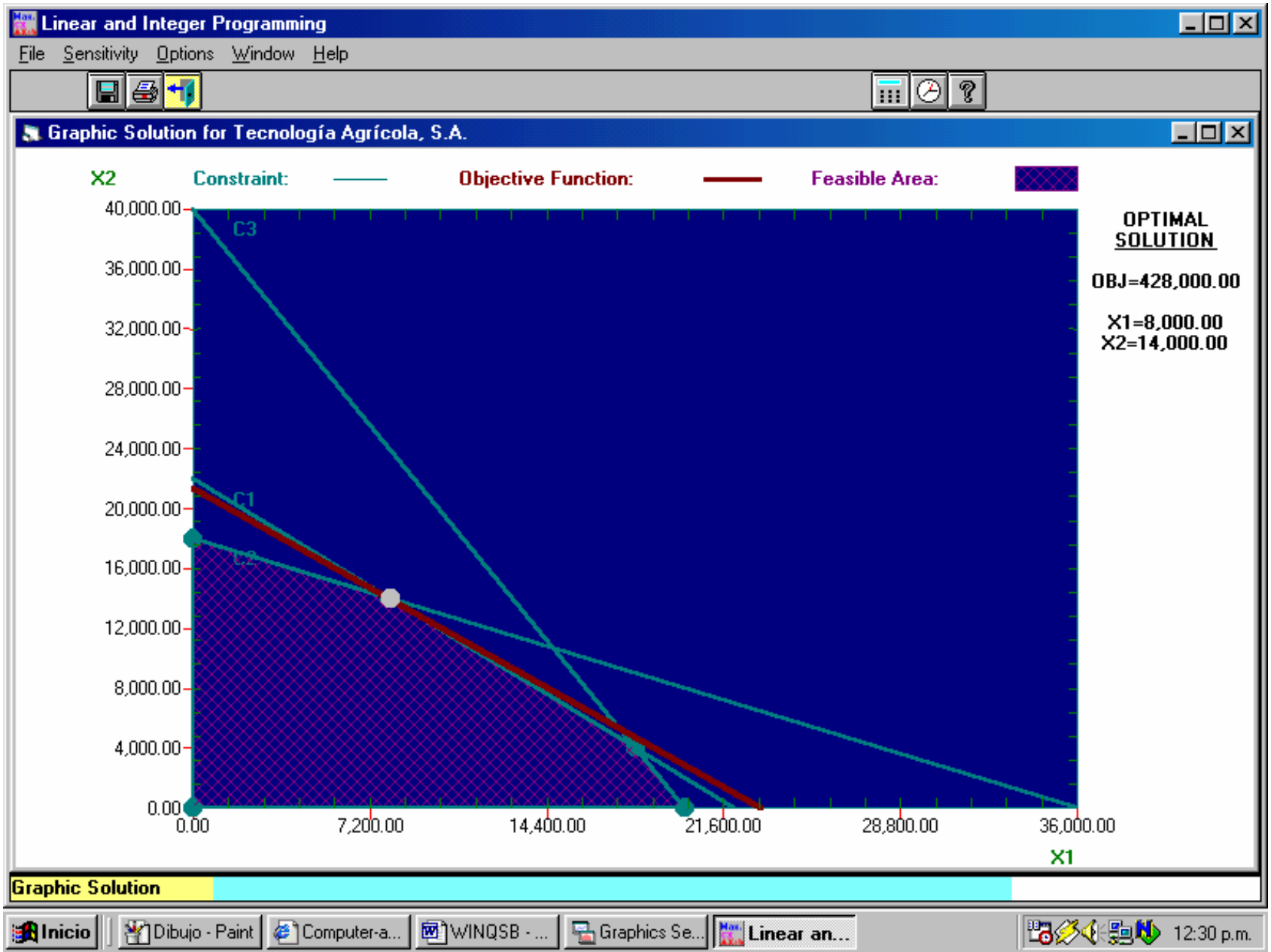

Linear and Integer Programming
LPILP
Linear and Integer Programming
Version 1.00
Copyright © Yih-Long Chang
Licensed to: IPN
Company: IPN
Please wait while loading program...

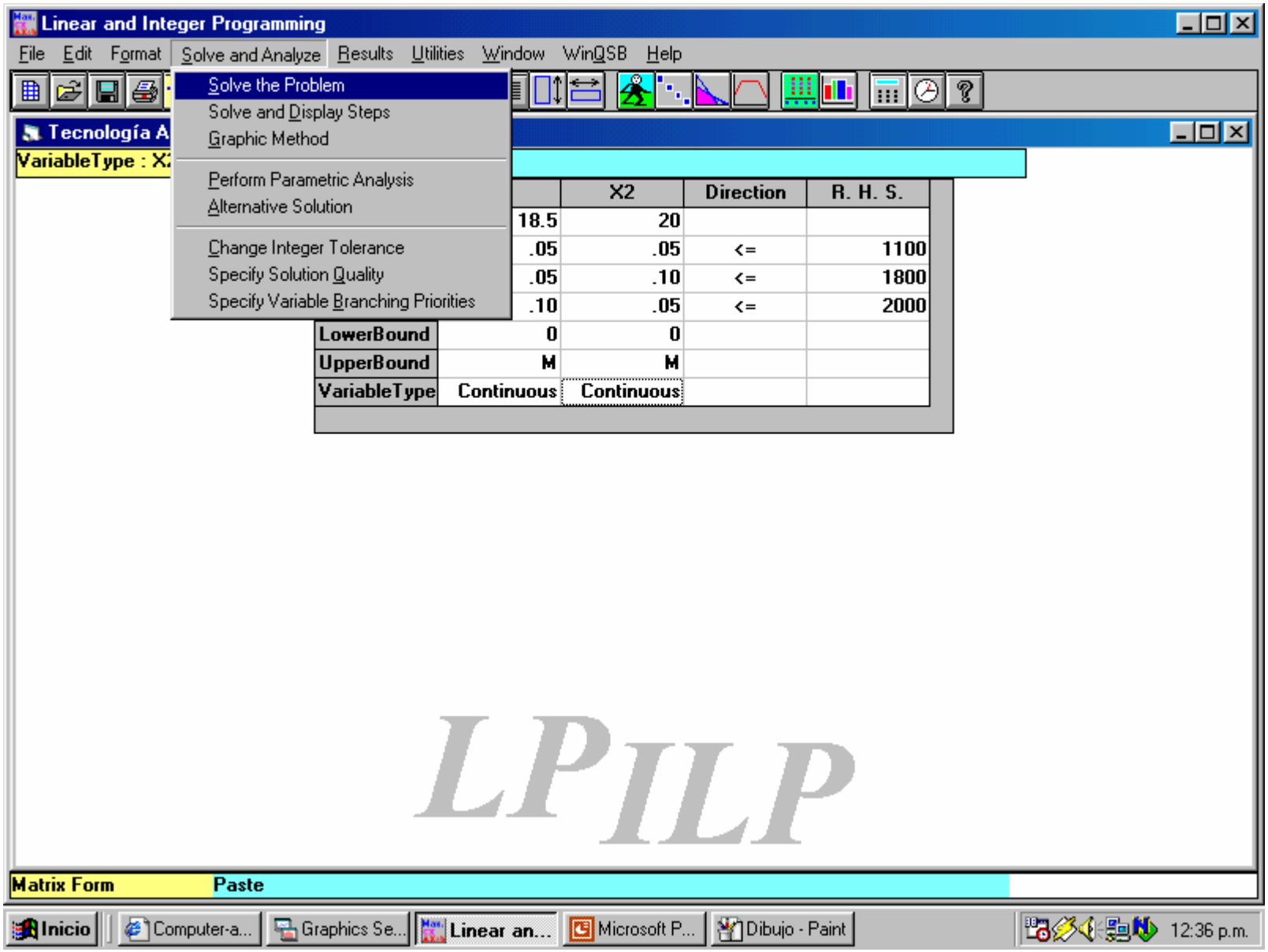

Linear and Integer Programming
File Help
LP-ILP Main
Inicio
Dibujo - Paint
Computer-assist...
Documento1 - ...
Graphics Server
Linear and I...
12:24 p.m.

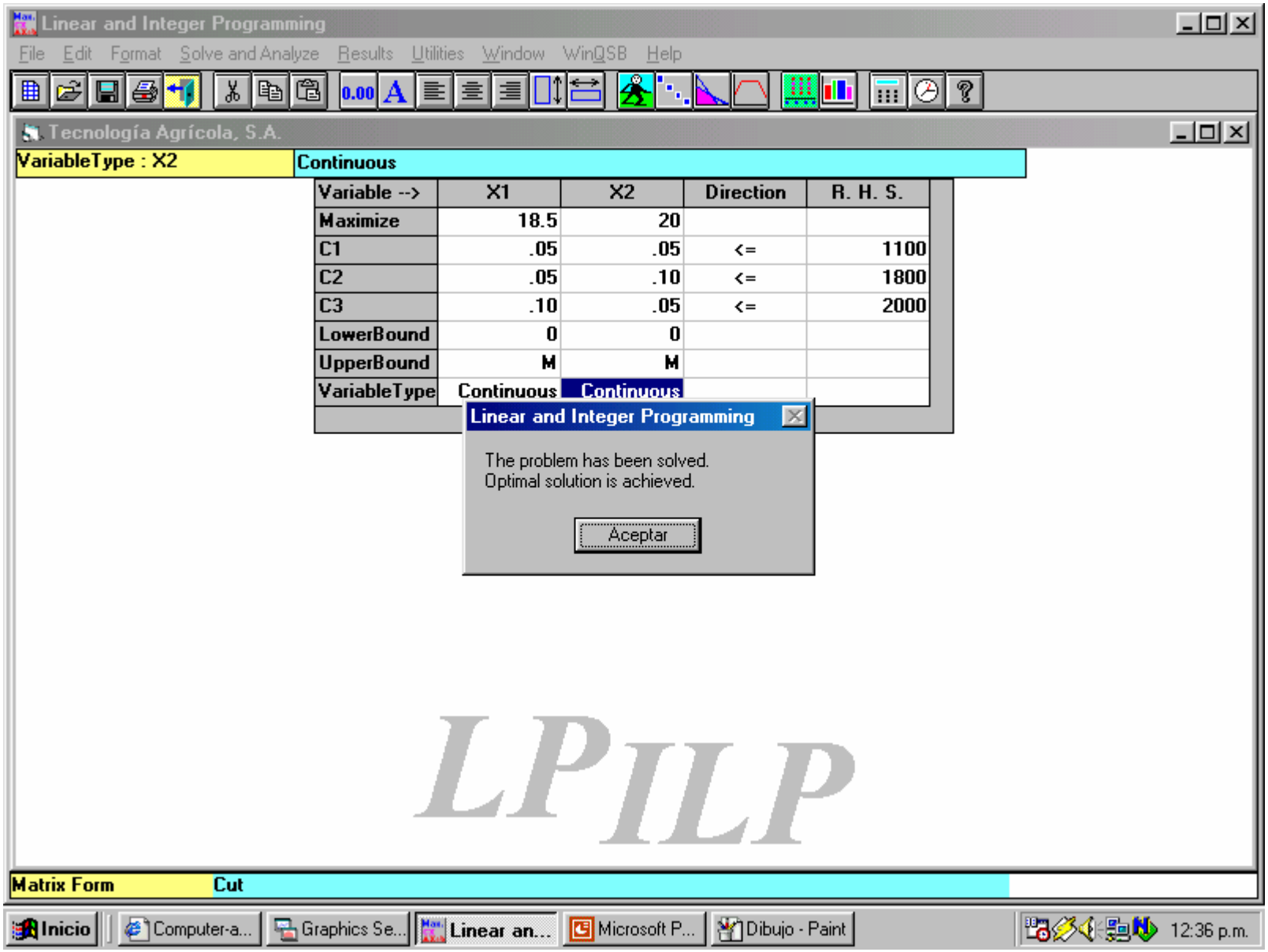

LP-ILP Problem Specification
Problem Title:
Tecnología Agrícola, S.A.
Number of Variables:
2
Number of Constraints:
3
Objective Criterion
Maximization
Minimization
Data Entry Format
Spreadsheet Matrix Form
Normal Model Form
Default Variable Type
Nonnegative continuous
Nonnegative integer
Binary (0,1)
Unsigned/unrestricted
OK
Cancel
Help

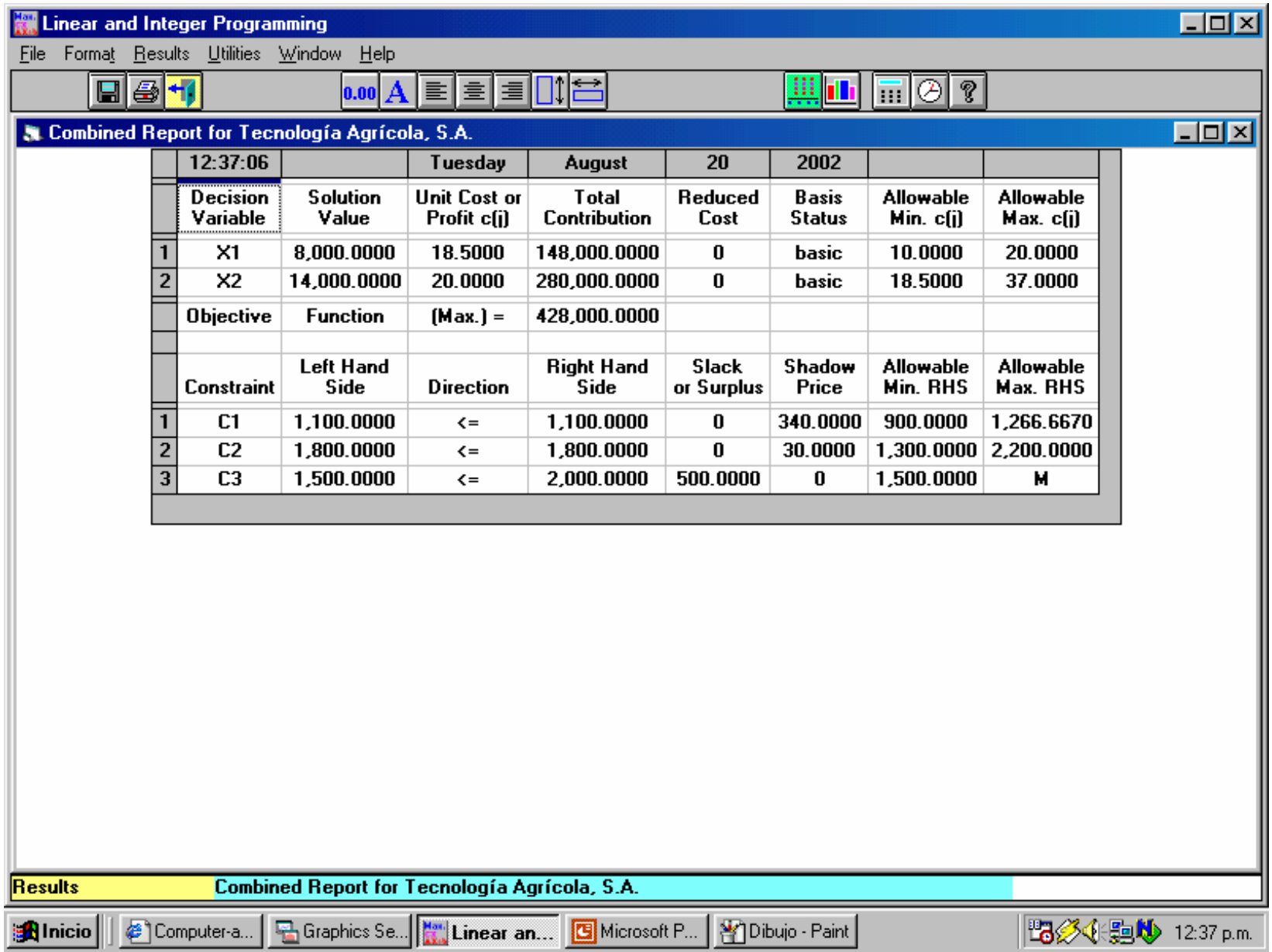

Linear and Integer Programming
File Edit Format Solve and Analyze Results Utilities Window WinQSB Help
Solve the Problem
Solve and Display Steps
Graphic Method
Perform Parametric Analysis
Alternative Solution
Change Integer Tolerance
Specify Solution Quality
Specify Variable Branching Priorities
Tecnología A
UpperBound : Di
X2 Direction R. H. S.
18.5 20
.05 .05 <= 1100
.05 .10 <= 1800
.10 .05 <= 2000
LowerBound 0 0
UpperBound M M
VariableType Continuous Continuous

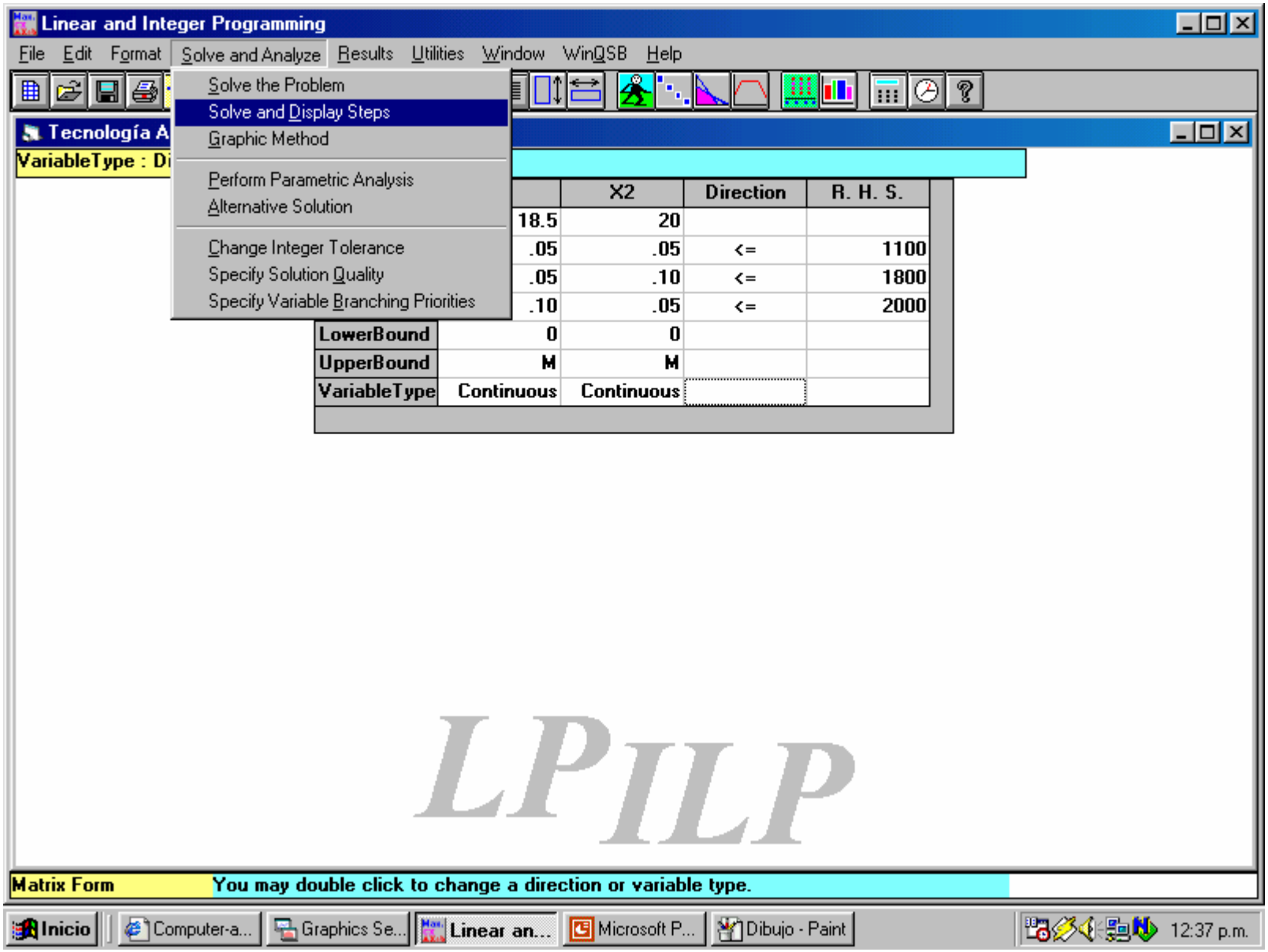

Linear and Integer Programming
File Edit Format Solve and Analyze Results Utilities Window WinQSB Help
Tecnología Agríc
UpperBound : Directi
Select Variables for Graphic Method
X (horizontal) axis
Y (vertical) axis
X1
X2
X1
X2
X1
X2
OK
Cancel
Help
Direction
R. H. S.
<=
1100
<=
1800
<=
2000


Linear and Integer Programming
File Sensitivity Options Window Help
Graphic Solution for Tecnología Agrícola, S.A.
X2
Constraint:
Objective Function:
Feasible Area:
40,000.00
36,000.00
32,000.00
28,000.00
24,000.00
20,000.00
16,000.00
12,000.00
8,000.00
4,000.00
0.00
C3
C1
C2
0.00
7,200.00
14,400.00
21,600.00
28,800.00
36,000.00
X1
OPTIMAL SOLUTION
OBJ=428,000.00
X1=8,000.00
X2=14,000.00
Graphic Solution
Inicio
Dibujo - Paint
Computer-a...
WINQSB - ...
Graphics Se...
Linear an...
12:30 p.m.


Linear and Integer Programming
File Edit Format Solve and Analyze Results Utilities Window WinQSB Help
Solve the Problem
Solve and Display Steps
Graphic Method
Perform Parametric Analysis
Alternative Solution
Change Integer Tolerance
Specify Solution Quality
Specify Variable Branching Priorities
Tecnología A
VariableType : X
X2 Direction R. H. S.
18.5 20
.05 .05 <= 1100
.05 .10 <= 1800
.10 .05 <= 2000
LowerBound 0 0
UpperBound M M
VariableType Continuous Continuous
LPILP
Matrix Form Paste
Inicio Computer-a... Graphics Se... Linear an... Microsoft P... Dibujo - Paint 12:36 p.m.


Linear and Integer Programming
File Edit Format Solve and Analyze Results Utilities Window WinQSB Help
Tecnología Agrícola, S.A.
VariableType : X2
Continuous
Variable --> X1 X2 Direction R. H. S.
Maximize 18.5 20
C1 .05 .05 <= 1100
C2 .05 .10 <= 1800
C3 .10 .05 <= 2000
LowerBound 0 0
UpperBound M M
VariableType Continuous Continuous
Linear and Integer Programming
The problem has been solved.
Optimal solution is achieved.
Aceptar
LPILP
Matrix Form
Cut
Inicio
Computer-a...
Graphics Se...
Linear an...
Microsoft P...
Dibujo - Paint
12:36 p.m.


Linear and Integer Programming
File Format Results Utilities Window Help
Combined Report for Tecnología Agrícola, S.A.
12:37:06 Tuesday August 20 2002
Decision Variable | Solution Value | Unit Cost or Profit c(j) | Total Contribution | Reduced Cost | Basis Status | Allowable Min. c(j) | Allowable Max. c(j)
1 X1 8,000.0000 18.5000 148,000.0000 0 basic 10.0000 20.0000
2 X2 14,000.0000 20.0000 280,000.0000 0 basic 18.5000 37.0000
Objective Function (Max.) = 428,000.0000
Constraint | Left Hand Side | Direction | Right Hand Side | Slack or Surplus | Shadow Price | Allowable Min. RHS | Allowable Max. RHS
1 C1 1,100.0000 <= 1,100.0000 0 340.0000 900.0000 1,266.6670
2 C2 1,800.0000 <= 1,800.0000 0 30.0000 1,300.0000 2,200.0000
3 C3 1,500.0000 <= 2,000.0000 500.0000 0 1,500.0000 M
Results Combined Report for Tecnología Agrícola, S.A.
Inicio Computer-a... Graphics Se... Linear an... Microsoft P... Dibujo - Paint 12:37 p.m.


Linear and Integer Programming
File Edit Format Solve and Analyze Results Utilities Window WinQSB Help
Solve the Problem
Solve and Display Steps
Graphic Method
Perform Parametric Analysis
Alternative Solution
Change Integer Tolerance
Specify Solution Quality
Specify Variable Branching Priorities
Tecnología A
VariableType : Di
X2 Direction R. H. S.
18.5 20
.05 .05 <= 1100
.05 .10 <= 1800
.10 .05 <= 2000
LowerBound 0 0
UpperBound M M
VariableType Continuous Continuous
LPILP
Matrix Form
You may double click to change a direction or variable type.
Inicio
Computer-a...
Graphics Se...
Linear an...
Microsoft P...
Dibujo - Paint
12:37 p.m.

Simplex Tableau -- Iteration 1

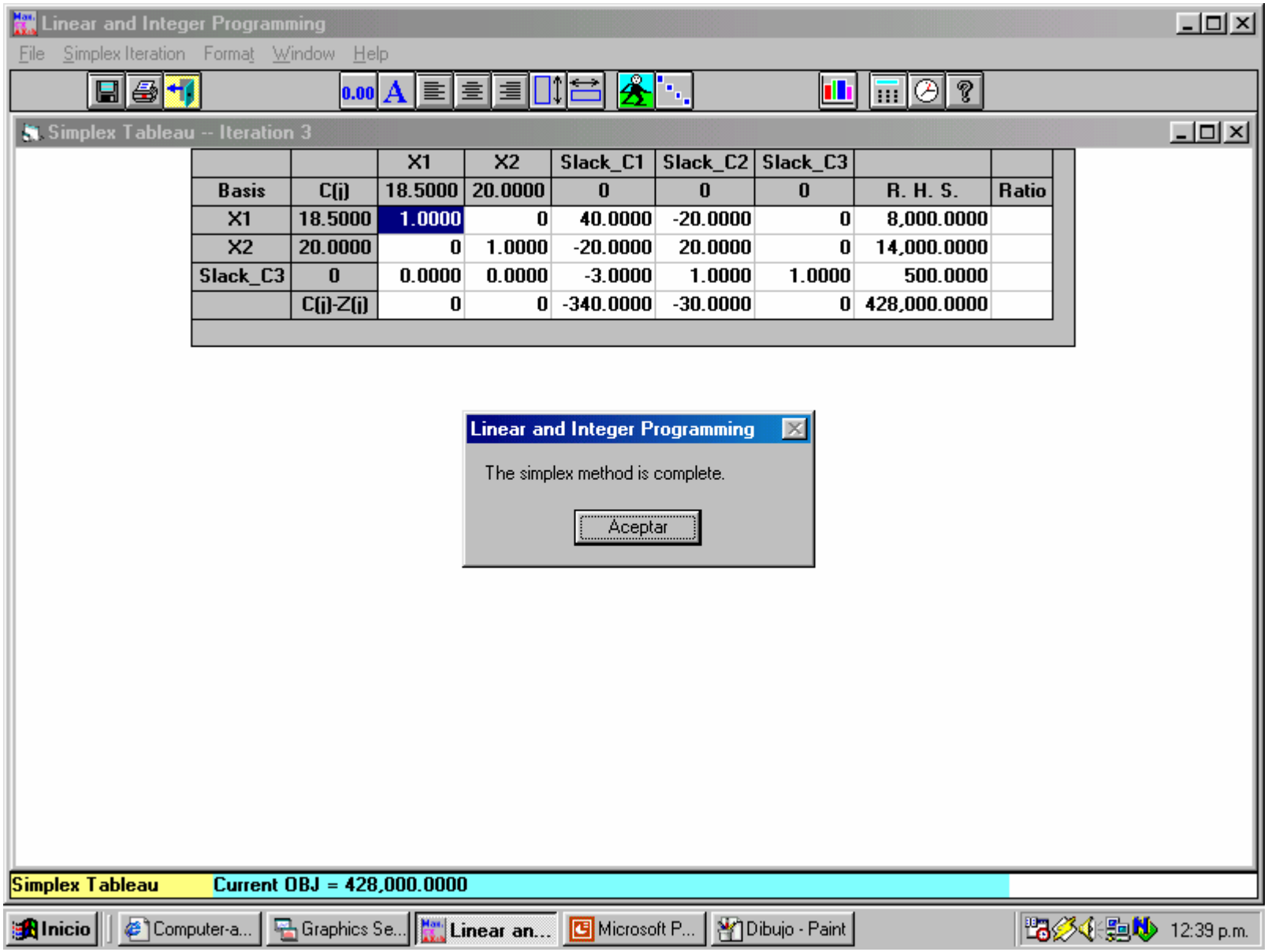
		X1	X2	Slack_C1	Slack_C2	Slack_C3		
Basis	C(j)	18.5000	20.0000	0	0	0	R. H. S.	Ratio
Slack_C1	0	0.0500	0.0500	1.0000	0	0	1,100.0000	22,000.0000
Slack_C2	0	0.0500	0.1000	0	1.0000	0	1,800.0000	18,000.0000
Slack_C3	0	0.1000	0.0500	0	0	1.0000	2,000.0000	40,000.0000
	C(j)-Z(j)	18.5000	20.0000	0	0	0	0	

Simplex Tableau -- Iteration 2

		X1	X2	Slack_C1	Slack_C2	Slack_C3		
Basis	C(j)	18.5000	20.0000	0	0	0	R. H. S.	Ratio
Slack_C1	0	0.0250	0	1.0000	-0.5000	0	200.0000	8,000.0000
X2	20.0000	0.5000	1.0000	0	10.0000	0	18,000.0000	36,000.0000
Slack_C3	0	0.0750	0	0	-0.5000	1.0000	1,100.0000	14,666.6700
	C(j)-Z(j)	8.5000	0	0	-200.0000	0	360,000.0000	

Simplex Tableau -- Iteration 3

		X1	X2	Slack_C1	Slack_C2	Slack_C3		
Basis	C(j)	18.5000	20.0000	0	0	0	R. H. S.	Ratio
X1	18.5000	1.0000	0	40.0000	-20.0000	0	8,000.0000	
X2	20.0000	0	1.0000	-20.0000	20.0000	0	14,000.0000	
Slack_C3	0	0.0000	0.0000	-3.0000	1.0000	1.0000	500.0000	
	C(j)-Z(j)	0	0	-340.0000	-30.0000	0	428,000.0000	



		X1	X2	Slack_C1	Slack_C2	Slack_C3		
Basis	C(j)	18.5000	20.0000	0	0	0	R. H. S.	Ratio
X1	18.5000	1.0000	0	40.0000	-20.0000	0	8,000.0000	
X2	20.0000	0	1.0000	-20.0000	20.0000	0	14,000.0000	
Slack_C3	0	0.0000	0.0000	-3.0000	1.0000	1.0000	500.0000	
	C(j)-Z(j)	0	0	-340.0000	-30.0000	0	428,000.0000	