



# *Disegno, Progettazione e Organizzazione Industriale*

*English lesson*

*5BMEC Prof. Massimiliano Usai*

## **THE GANTT CHART**

- WHAT IS USED FOR
- HOW TO MAKE IT WITH EXCEL

### WHAT IS USED FOR:

The Gantt chart is mainly used in project management activities. Gantt chart is a very useful tool for managers.

Henry Gantt developed this chart in 1917 for scheduling work in factories.

It can be drawn by hand but is faster with the help of the computer.

It is built starting with an horizontal axis which represent the total time to complete the project; this time is divided into days, weeks, months and sometimes in hours. The chart has a vertical axis in which are represented the activities involved in the project.

Horizontal bars of different length represent the schedule of activities and their duration of each of them. The whole set of activities is the "work breakdown structure".

The bars can overlap during the same period, meaning the simultaneous execution of two or more activities.

The Gantt chart permits the depiction of activities schedule, useful for planning them in a simply and graphic way, in order to make the work progress easy to check and eventually to correct by managers.

While is possible to represent connections among activities with PERT diagram, on the opposite side, this is not possible with Gantt chart. We can only represent time needed to complete an activity to which we can associate one or more markers. For example we can define the timetable work days and the number of man hours. For each activity we can associate the cost for a whole activity or a final cost based on man hour.

In most companies Gantt charts are simply used to determine easily and immediately the end of an activity. This could be easily done without graphical methods as long as activities are few. When there are more than five-six activities working together a calculator could be helpful.

Figure 1 shows a simple Gantt chart:



## HOW TO CREATE IT WITH EXCEL

Microsoft Excel can easily be used for scheduling and resource management, with columns to track planned and actual start and finish dates. Excel is a practical solution for a small project in a small organization since many businesses have access to Excel and therefore do not have to buy any additional tools.

Consider a production of mechanical camshafts that are created starting from rough iron bars 6 meters length. To obtain the final product is necessary a chip forming machining, heat treatment and a finally quality testing.

Basic Skills Excel does not offer Gantt as a chart type, but it is fairly easy to create such a chart by using a stacked bar chart. To create a GANTT chart follow these steps:

1) Create a data table as shown in figure 2

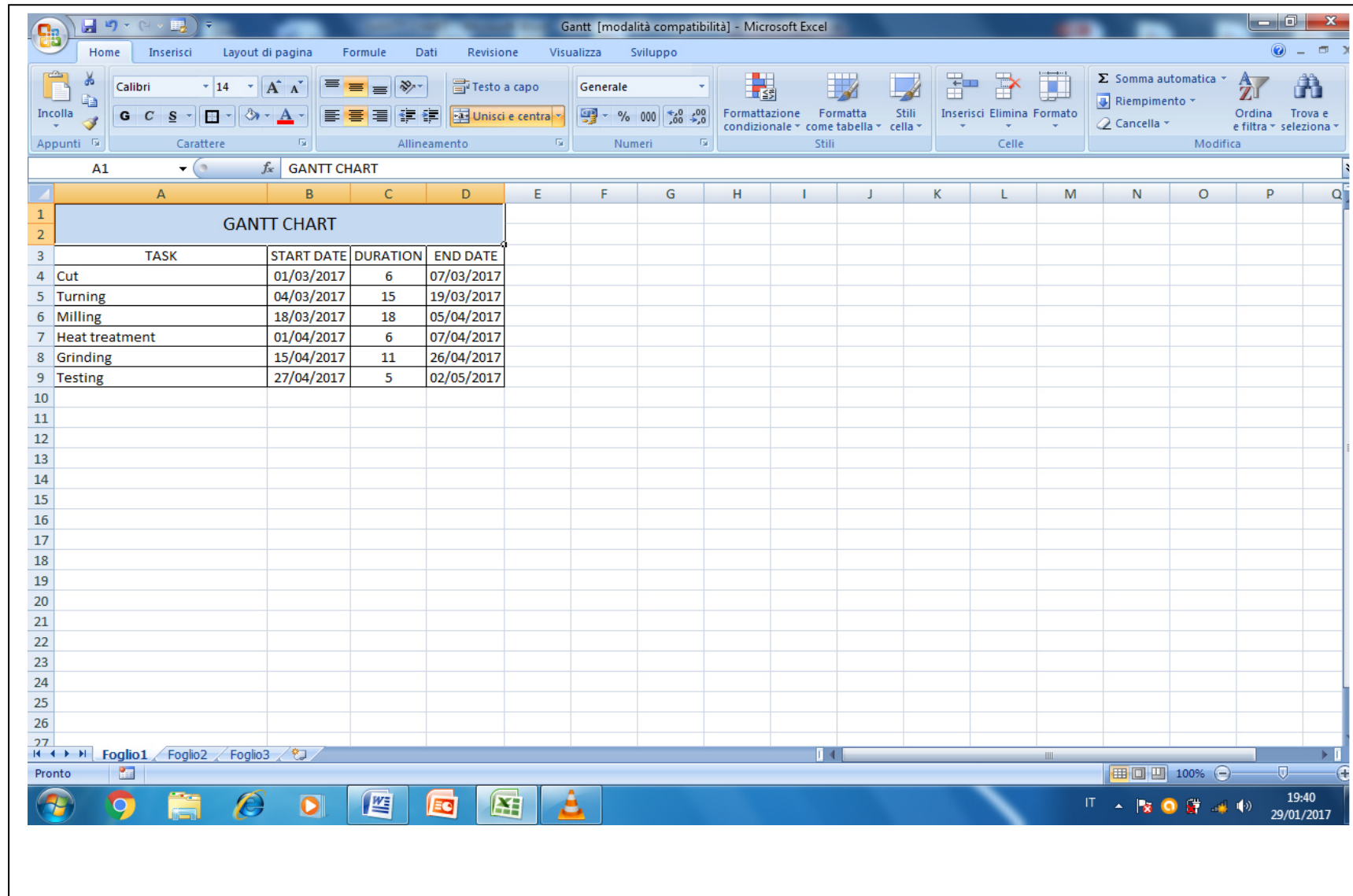


Fig 2- Data table

- 2) While the cell “GANTT CHART” is selected, click on “Insert” in the top bar; click on the “bar-grafico” icon and choose “stack bars”. Have a look at the figure 3

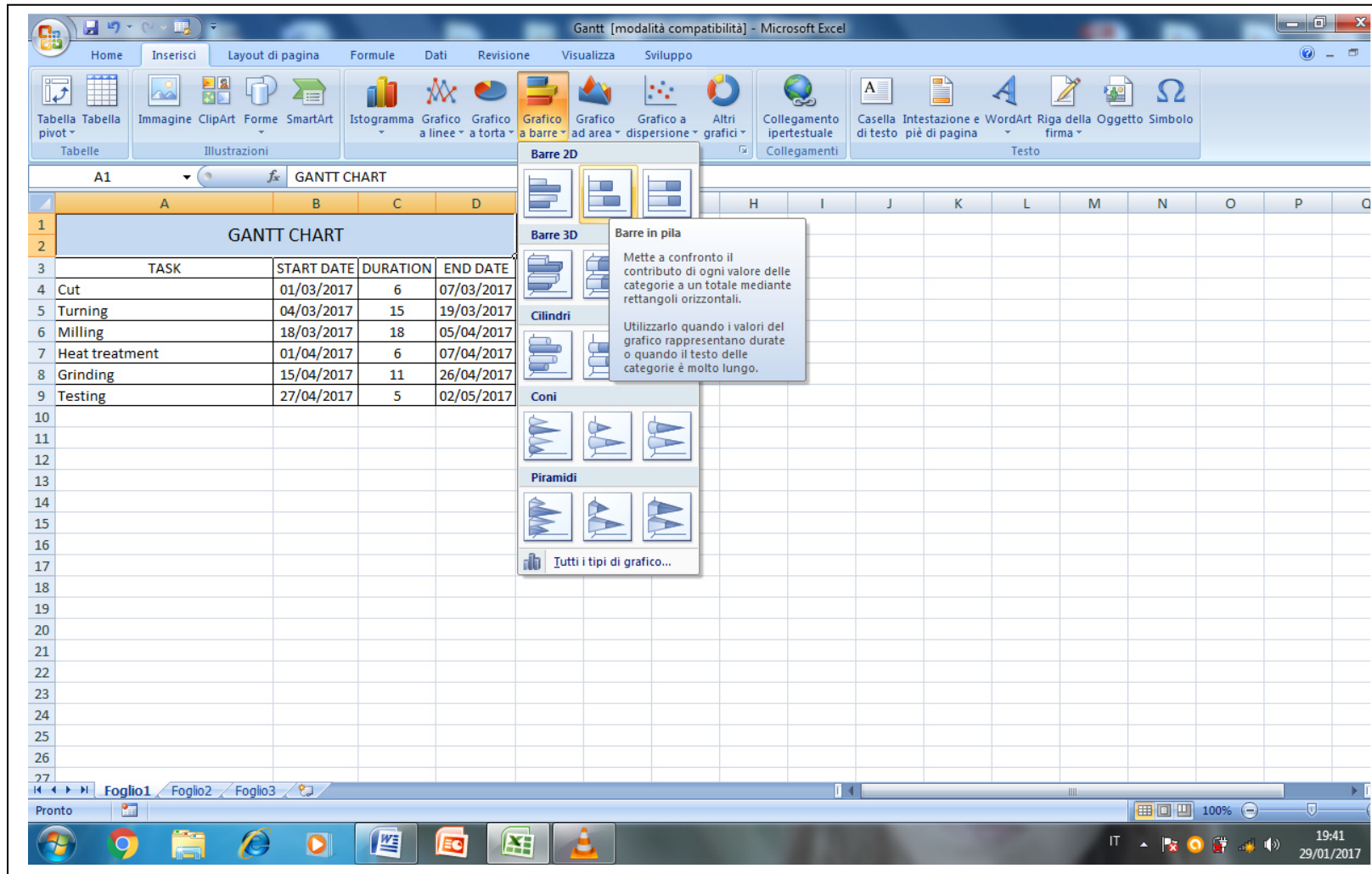


Fig.3- Choose stack bars

3) A window appears. Click with the right button of the mouse into the window, in the blank space; select the option “select data”, as shown in Fig.4

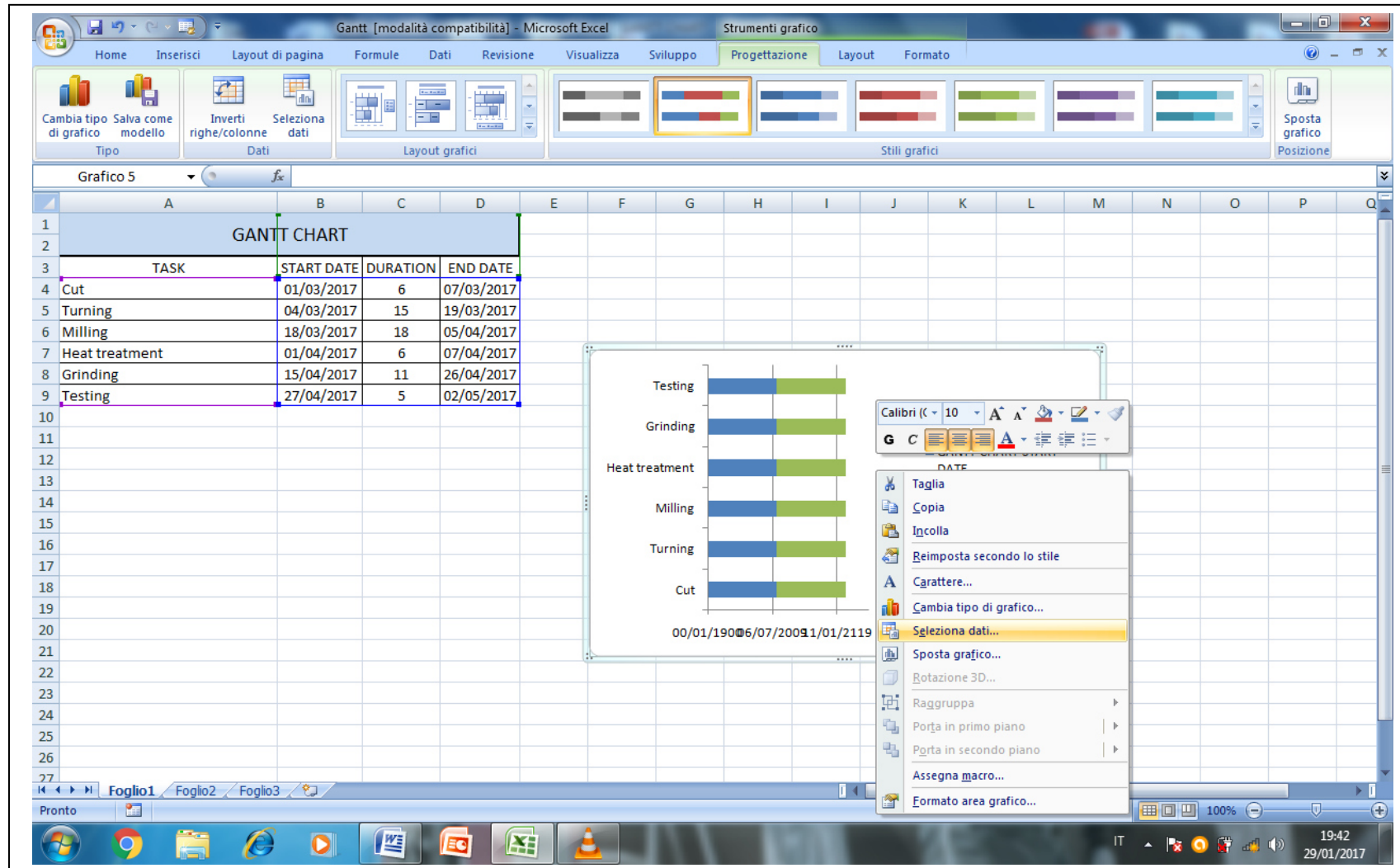


Fig.4- Select data

4) In the “select origin data” window, select “GANTT CHART DATE” (third series) and then remove it (Fig.5)

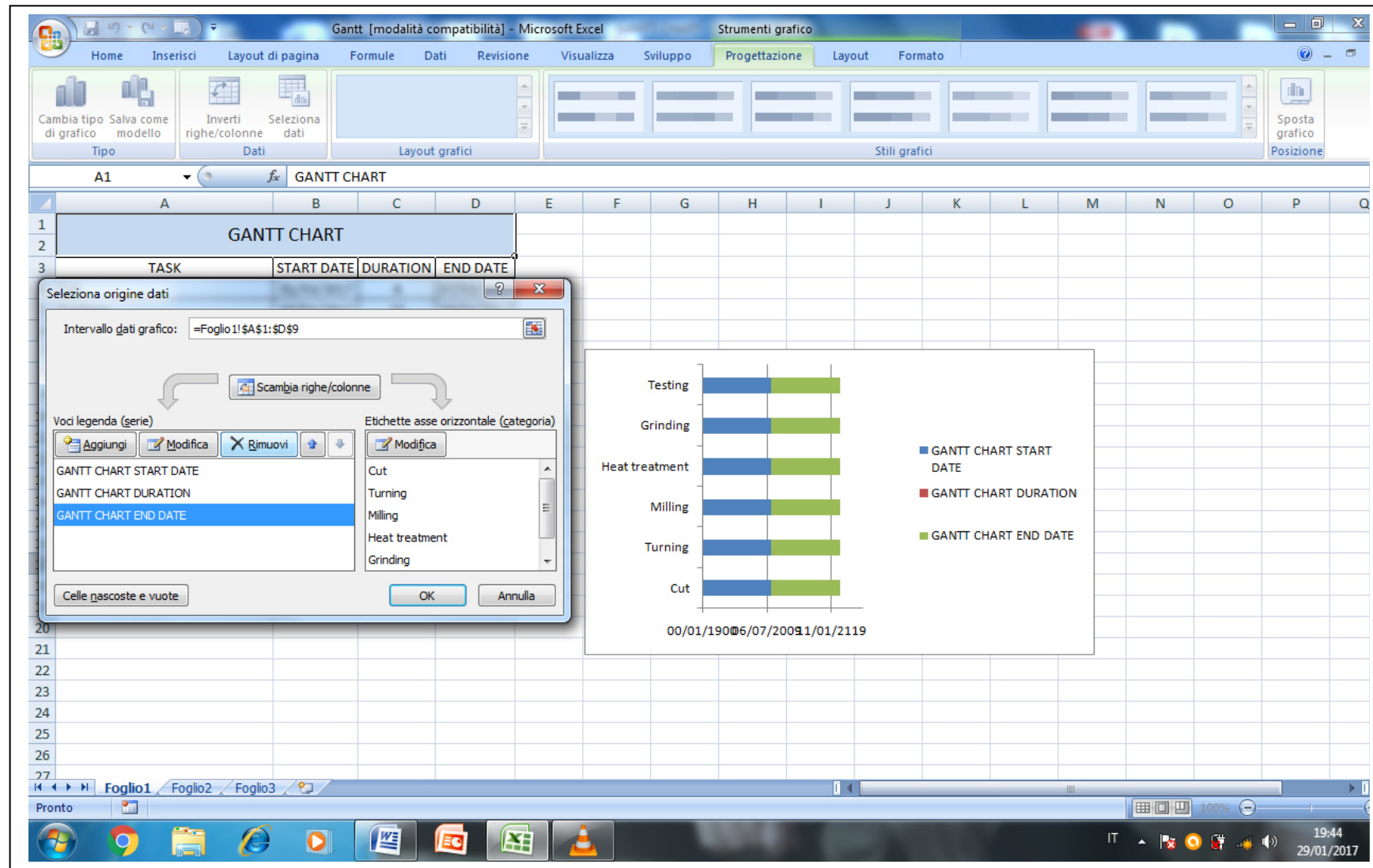


Fig.5-Remove the third series

5) Press OK. The result is shown in Fig.6

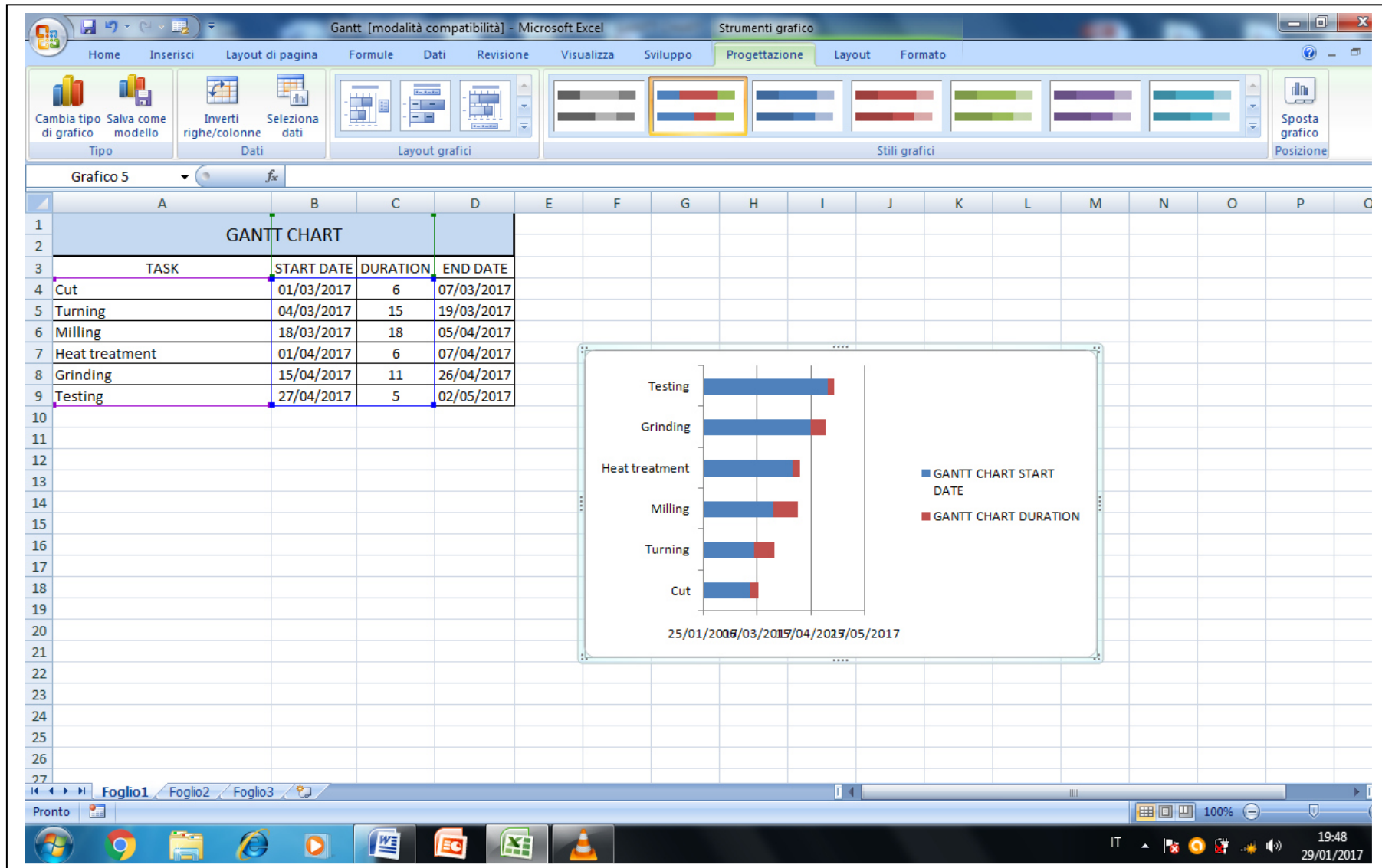


Fig.6- Result of the removal of the third series



6) Expand the picture so that is easily readable (Fig. 7)

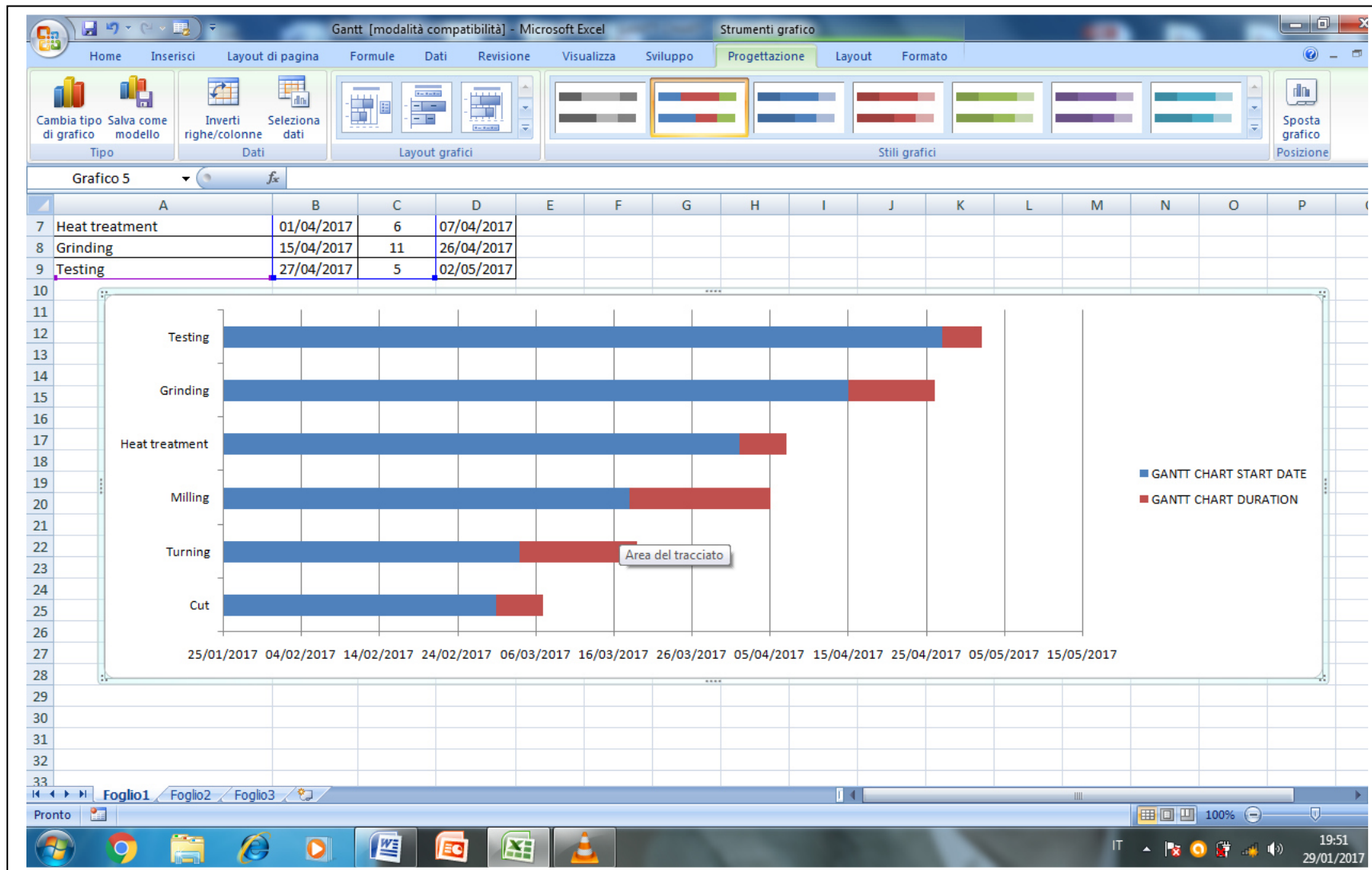


Fig.7- Expanded diagram

7) To erase the blue bars “Gantt start date”, click on them with the right button and select “Data series format” (Fig.8-9)

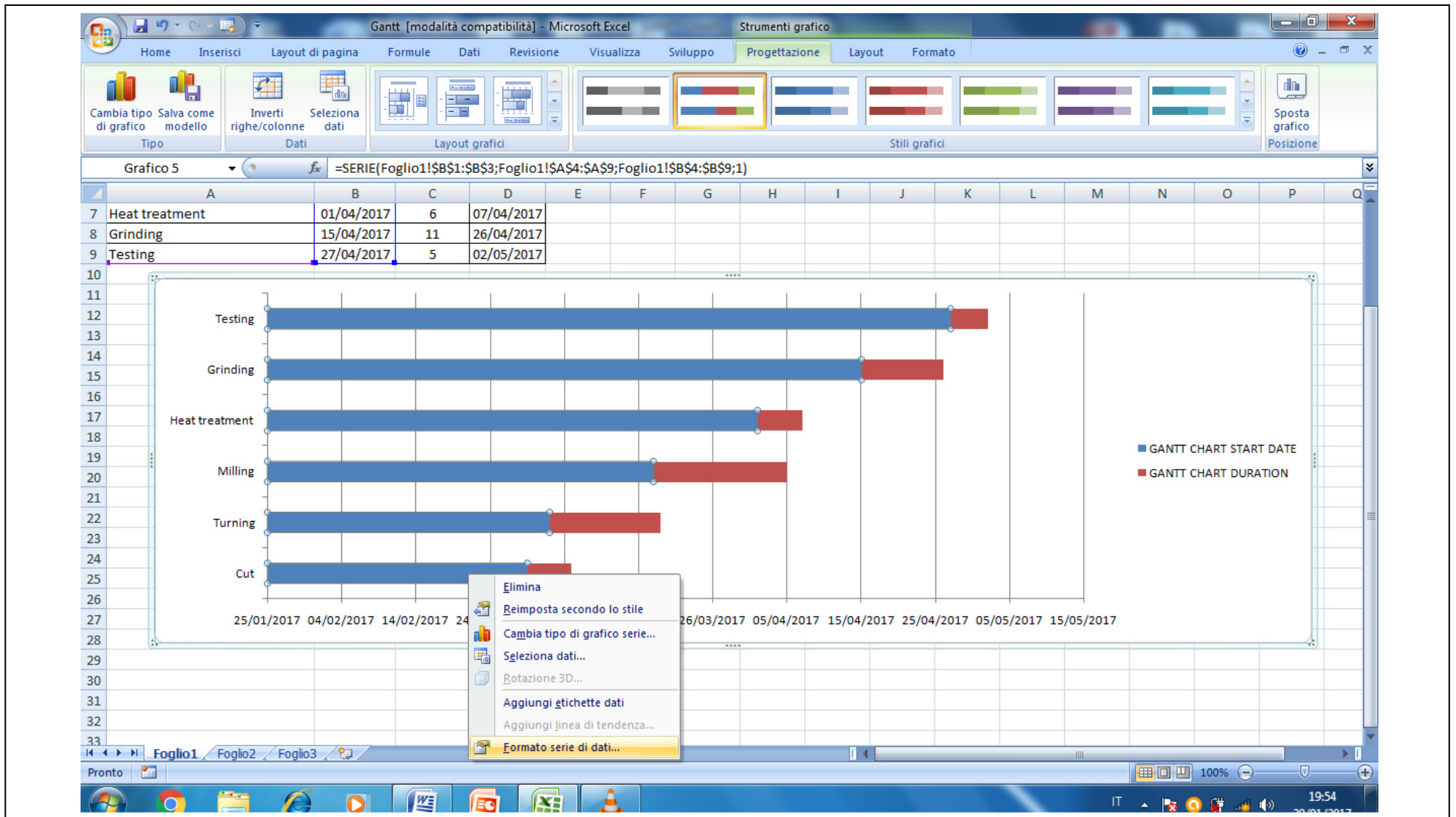


Fig.8-Erase blue bars

8) Select "filling" and then "no filling". Select "side color" and then "no sides".

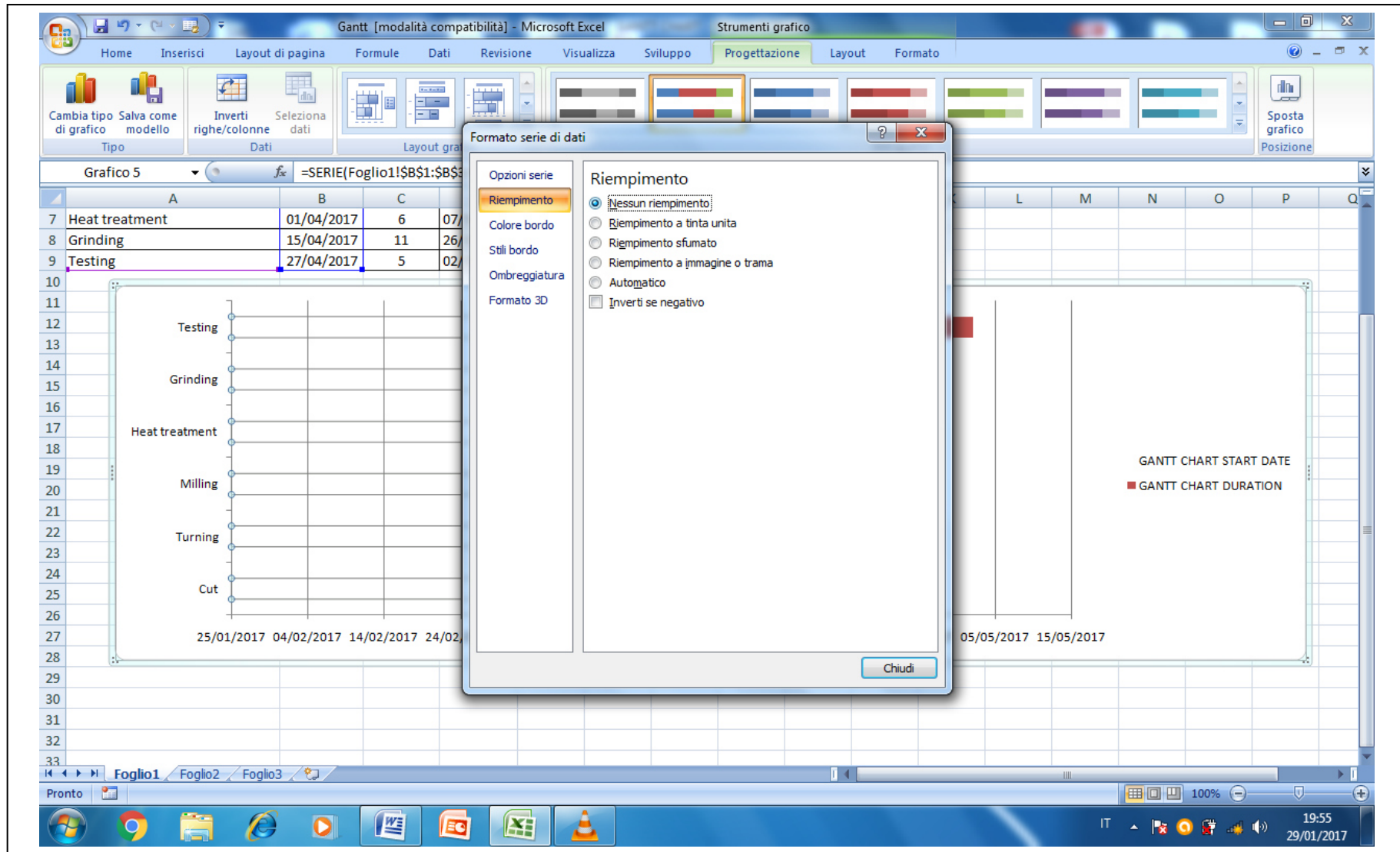


Fig.9-Erase blue bars

9) The result is shown in Fig. 10, in which the manufacturing series is the opposite we were expecting.

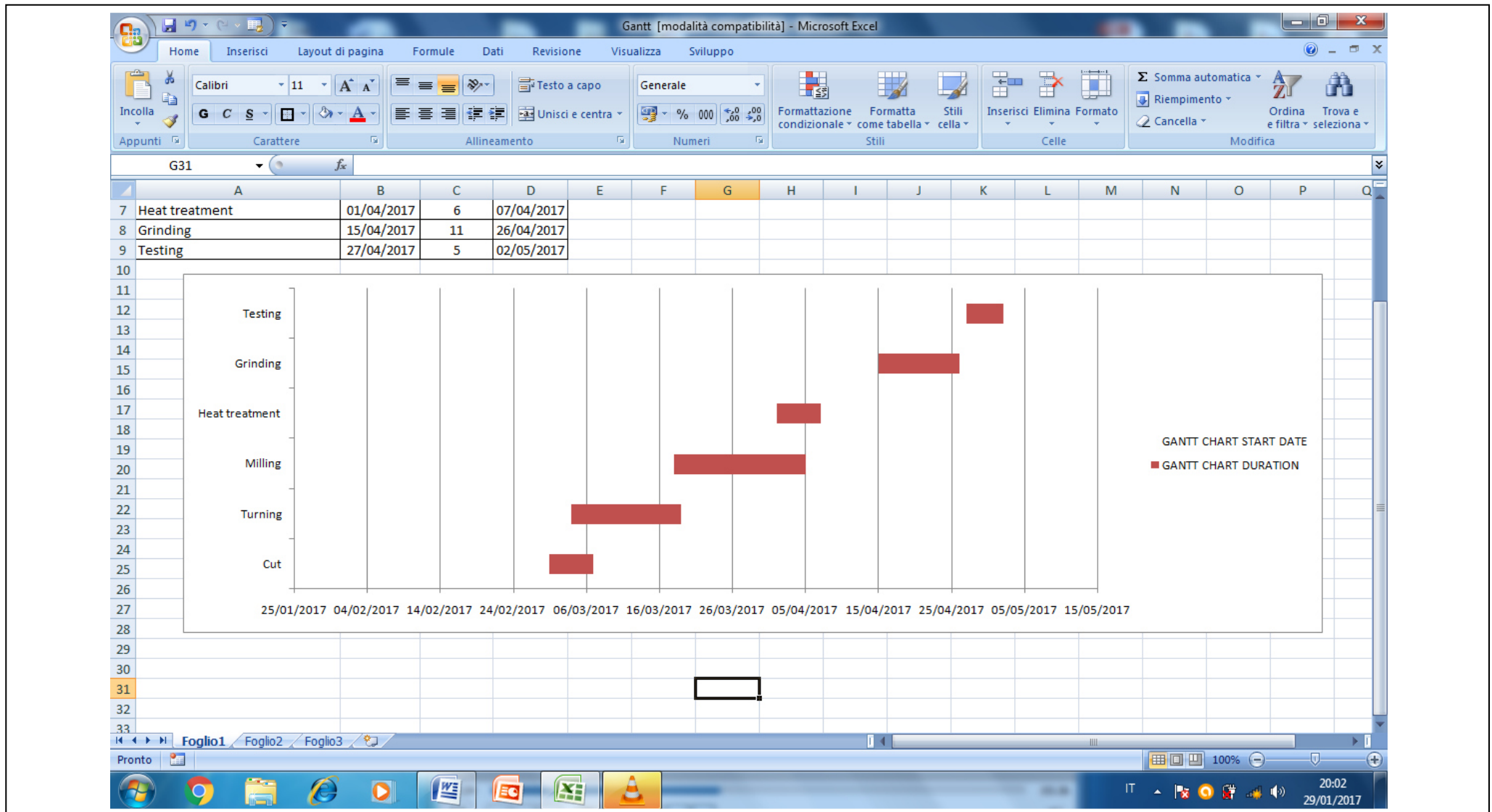


Fig.10- Gantt chart with inverted series

10) To complete the chart, click with the right button on the right series and choose the “axis format” option (Fig.11)

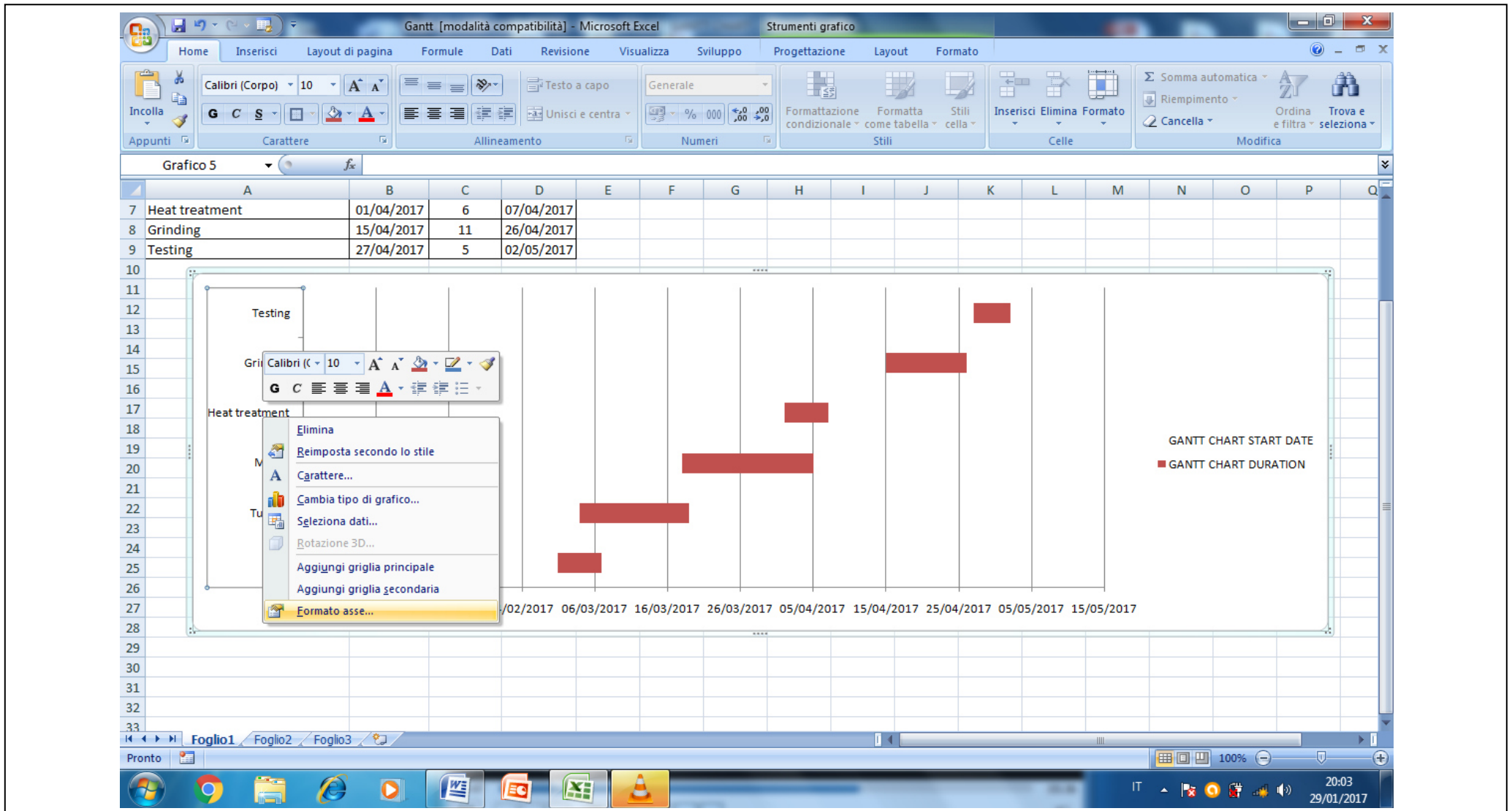


Fig.11-Axis format

11) In "axis option" choose "inverted categories" (as shown in Fig. 12) and then close.

The screenshot shows Microsoft Excel with a Gantt chart titled 'Gantt [modalità compatibilità] - Microsoft Excel'. The chart displays tasks: Cut, Turning, Milling, Heat treatment, Grinding, and Testing. A legend indicates 'GANTT CHART START DATE' (blue square) and 'GANTT CHART DURATION' (red square). The 'Formato asse' dialog box is open, showing the 'Opzioni assi' tab. The 'Categorie in ordine inverso' checkbox is checked. The 'Etichette asse' dropdown is set to 'Vicino all'asse'. The 'L' and 'M' columns of the spreadsheet are visible in the background.

	A	B	C	
7	Heat treatment	01/04/2017	6	07/04/2017
8	Grinding	15/04/2017	11	26/04/2017
9	Testing	27/04/2017	5	02/05/2017

Fig.12-Invert axis order

The Fig.13 shows the correct Gantt chart . It is possible to erase right labels or to modify colors or type of the bars (Fig.14)

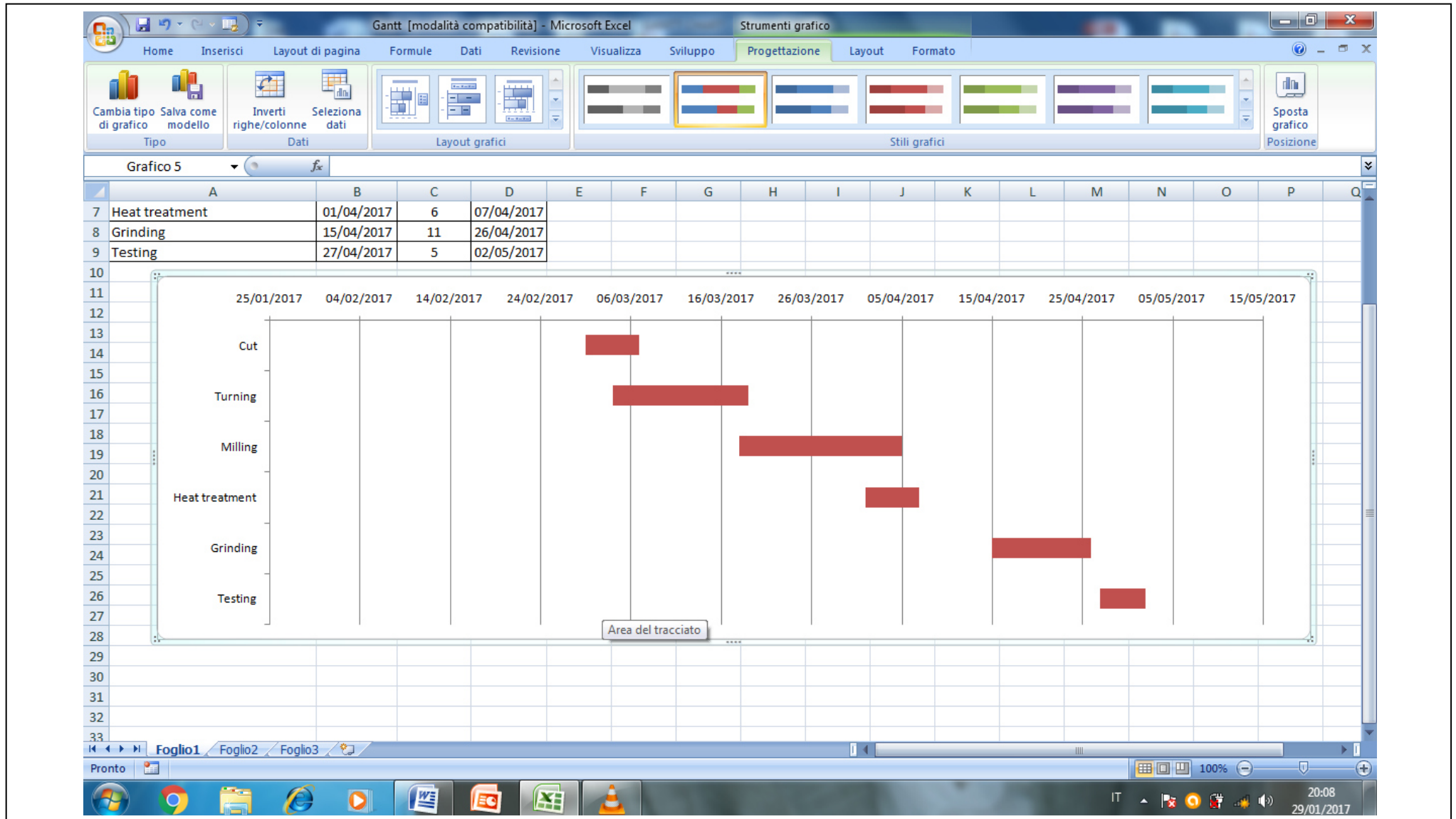


Fig. 13- Correct Gantt chart

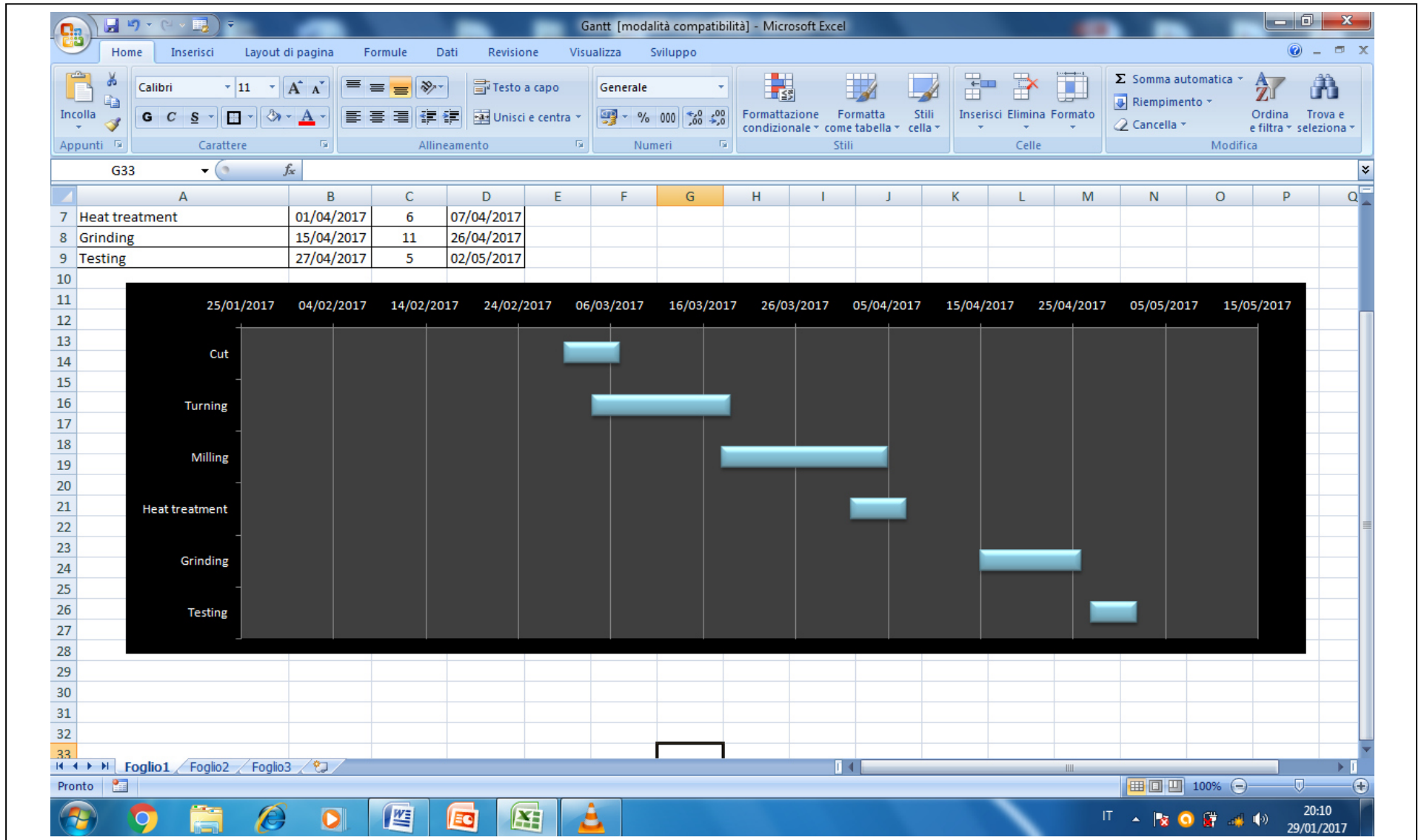


Fig. 14- A possible graphic variation