

## Down on the Farm(s)

by – Peggy Welch

### Activity overview

*The interplay between increasing urban population and decreasing rural populations is not always as simple as a gain or loss in the urban/rural equation. In Jessamine County, KY, the increasing population of Lexington, the urban center to the north, has not only meant fewer people on local farms, but also increasing pressure for development of rural farmland due to urbanization.*

### Concepts

*Students will explore correlation between urban and rural population statistics.*

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### Teacher preparation

*Brainstorm with your students by asking them what current trends of land use they have observed. Ask them their opinions of these trends; the pros and cons.*

### Classroom management tips

*Research the data for your location on the web or obtain records from your county extension agent. If time permits, have your students do the research.*

### TI-Nspire Applications

*In this activity, you will use TI-Nspire™ Lists & Spreadsheet application..*

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### Step-by-step directions

Insert a new page with the Lists & Spreadsheet application. In column A, enter the year data for Jessamine County Population Statistics. Arrow up to the top of the column and label it YP. In column B, enter the population (100's) data. Arrow up to the top of the column and label it P.

Table 1. Jessamine County Population Statistics

| Year | Population (100's) |
|------|--------------------|
| 1970 | 174.3              |
| 1980 | 261.46             |
| 1990 | 305.08             |
| 2000 | 390.41             |

2. Press **MENU > Statistics > Stat Calculations > Linear Regression (mx+b)**.

3. For X list, choose YP. For Y List, choose P.

4. The equation will appear in Columns C and D. For easier viewing, press **MENU > Actions > Resize > Resize Column Width**. Arrow to the top of Column D and right arrow until the equation is in full view.

5. Write the equation for the line.

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6. What is the rate of population growth?

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7. In Column C, enter the year data for Jessamine County Farm Census. Arrow up to the top of the column and label it YF. Enter the number of farms in column D. Arrow up to the top of the column and label it F.

Table 2. Jessamine County Farm Census

| Year | Number of Farms |
|------|-----------------|
| 1982 | 930             |
| 1987 | 879             |
| 1992 | 842             |
| 1997 | 829             |
| 2002 | 770             |

8. Press **MENU > Statistics > Stat Calculations > Linear Regression (mx+b)**.

9. For X list, choose YF. For Y list, choose F.

10. Write the equation for the line.

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11. What is the rate of farm number decline?

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12. Is there any correlation between population growth and number of farms?

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13. What changes have occurred in Jessamine County and surrounding areas during this time period?

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14. Use the regression equations to predict projected data if the current trend continues.

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### **Assessment and evaluation**

*Suggestions for assessing the activity (for the teacher) and the student (for understanding and content)*

- *re-teaching ideas if students aren't successful understanding the concept*
- *Optional: Answers to student questions in the Student TI-Nspire document and/or student worksheet*

#### Activity extension

Correlate this activity to current trends in food produce. Collaborate with agriculture, biology, business and social studies teachers to gain further insight on the following:

GMO's

Organic/Natural Foods

Availability of foods vs area of the country/world

Divide students into groups and have them research different areas of the country/world and compare their results.