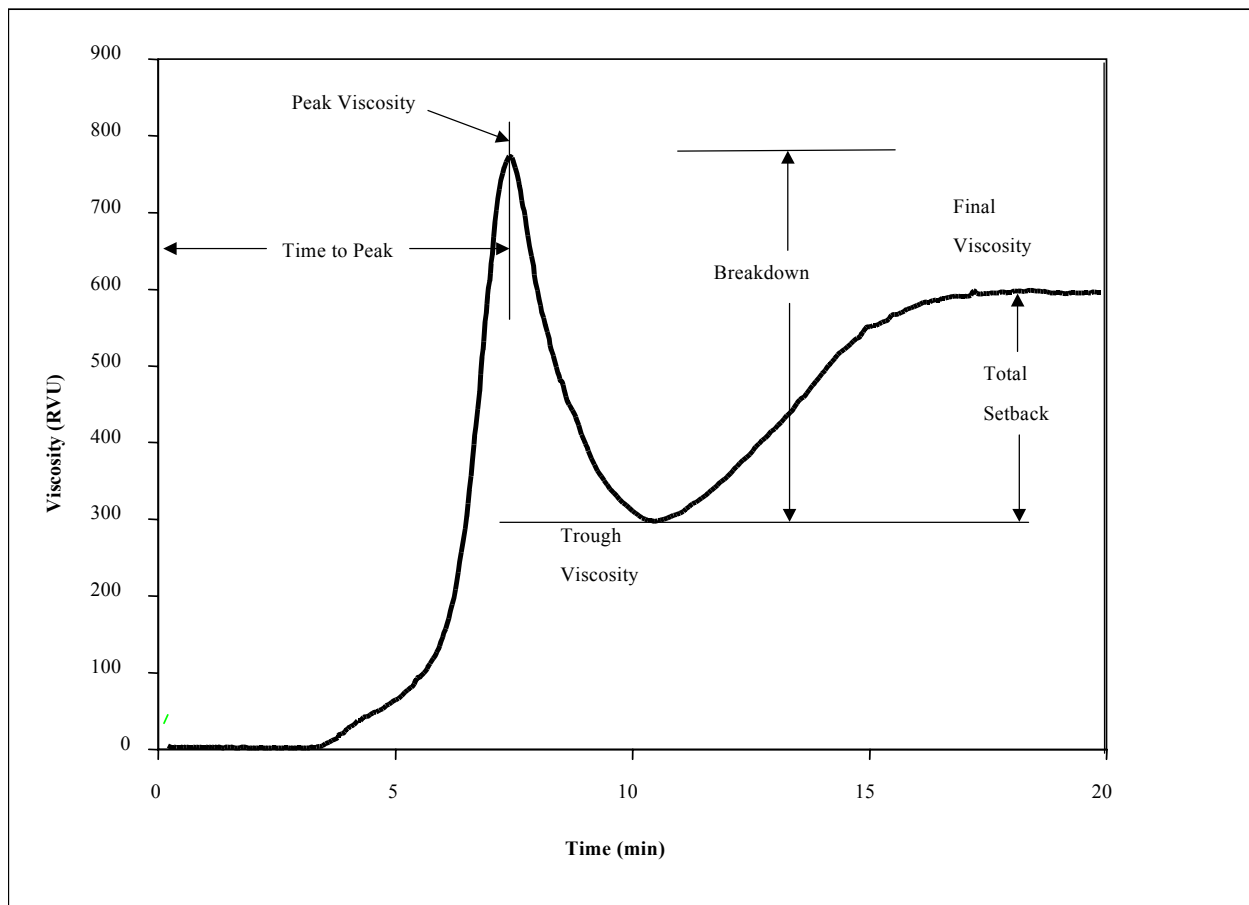


## Example Data

The data used here is provided by Dr. Kerry Huber and was collected with the assistance of Jeremy Higley and Jim Nelson. The data consists of a 3 x 5 x 5 factorial experiment on the viscosity characteristics of potato flour. The controlled experimental factors were 3 **Flour Concentrations**, 5 **Heating Rates**, and 5 **Peak Temperatures**. Each setting was repeated 3 times for two potato cultivars, Ida Rose and Russet Burbank. Most of the demonstrations shown will concentrate on the Russet Burbank cultivar.

Viscosity in this case is measured by heating a flour slurry and recording the solution viscosity in a variety of ways utilizing a Rapid Visco Analyzer (RVA). This device provides a “pasting” profile as shown below.



As the experimental run is conducted, the slurry viscosity changes over time. The changes in Relative Viscosity Units (RVU) can be considered as a response variable. In this example, six responses are measured, **Time to Peak Viscosity**, **Peak Viscosity level**, **Trough Viscosity**, **Breakdown**, **Final Viscosity** and the **Total Setback**. Each setting of temperature, heating rate and flour concentration will give a different pasting profile which varies across these parameters.

A short section of the data is shown below indicating the cultivar, experimental settings, response variables and experimental run. The full data set is available at <http://www.uidaho.edu/ag/statprog>.

<u>Cultivar</u>	<u>Heating Rate</u>	<u>Peak Temp</u>	<u>Flour Conc</u>	<u>Peak Visc</u>	<u>Trough Visc</u>	<u>Final Visc</u>	<u>Breakdown</u>	<u>Total Setback</u>	<u>TimePeak Visc</u>	<u>exp</u>
RB	2	75	2.5	268.6667	221.3333	243.8333	47.3333	22.5	7.1996	a
RB	2	75	2.5	250.0833	203.5833	226.5	46.5	22.9167	6.7996	b
RB	2	75	2.5	249.3333	209	234.3333	40.3333	25.3333	7.1996	c
RB	2	80	2.5	273.25	199.1667	235.1667	74.0833	36	6.9996	a
RB	2	80	2.5	263.6667	201.1667	237.8333	62.5	36.6667	7.2663	b
RB	2	80	2.5	259.6667	213.5	245.4167	46.1667	31.9167	7.1996	c
RB	2	85	2.5	269.25	167	228.4167	102.25	61.4167	7.2663	a
RB	2	85	2.5	258.5	162.5833	212.9167	95.9167	50.3333	7.333	b
RB	2	85	2.5	256.75	159.75	213.9167	97	54.1667	7.1996	c
RB	2	90	2.5	267.5	122.5	174.25	145	51.75	6.8663	a
RB	2	90	2.5	262.1667	128.25	213.5833	133.9167	85.3333	7.3996	b
RB	2	90	2.5	253.75	126.75	182.25	127	55.5	7.4663	c
RB	2	95	2.5	270.8333	99.6667	155.4167	171.1667	55.75	7.133	a
RB	2	95	2.5	267.8333	106.8333	168	161	61.1667	6.9996	b
RB	2	95	2.5	247.0833	91.25	153.4167	155.8333	62.1667	7.1996	c
RB	2	75	3	482.0833	359.5	400.5833	122.5833	41.0833	6.933	a
RB	2	75	3	484.5	376.25	424.5	108.25	48.25	7.2663	b
RB	2	75	3	470.6667	381	428.0833	89.6667	47.0833	7.1996	c
RB	2	80	3	470.0833	283.9167	363.75	186.1667	79.8333	6.6663	a
RB	2	80	3	470.4167	311.25	381.9167	159.1667	70.6667	7.2663	b
RB	2	80	3	480.75	319.6667	385	161.0833	65.3333	6.8663	c