



## IFPRI BRIEF TEMPLATE

Check One:    **Project**                       **Review**                       **Collaboration**  
                    **Workshop**                       **Other**

<b>Descriptive Title</b>	Effect of Feed Moisture and Temperature on Milling Performance
<b>Working Title<sup>1</sup></b>	Effect of Moisture on Milling Performance
<b>Technical Area<sup>2</sup></b>	SR
<b>Date</b>	June 22, 2021
<b>Short Description</b>	<p>We want to understand the interplay between drying that occurs in mills and the effect of dryness on the ability to mill particles.</p> <p>The grinding behavior of particles is impacted by moisture content. Materials that have a matrix structure can diffuse water through them, routinely have moisture contents in the range of 2-10% at point of grinding.</p> <p>The particles will sometimes heat and dry during grinding, influencing the subsequent breakage events; cooler and drier materials are generally more brittle.</p>
<b>Objectives</b>	<p>We would like to have efficient methods (experiments &amp; models) that enable us to set feed moisture/temperature targets and equipment settings for mills.</p> <p>We also want to understand the effect of milling on the drying, which may or may not be a desirable outcome.</p>
<b>Scope</b>	<p>This project is for dry milling using impact mills. The scope might include:</p> <ol style="list-style-type: none"> <li>1. Bench scale experimental method develop and data interpretation.</li> <li>2. Investigation of viscoelastic properties and brittleness of solids as affected by moisture and temperature</li> <li>3. Creation of population balance kernels that can be used in flowsheet/systems modeling.</li> </ol>

<b>Recommended Contractors (2 or 3)</b>		
Name	Institution	Email Address
W. Peukert	FAU	
R. Dave	NJIT	

<sup>1</sup> Title used in meeting agendas and file archives

<sup>2</sup> One or more from the following list: W = wet systems; D = dry systems; F = particle formation; SR = size reduction; M = modeling; SE = systems engineering

<b>Submitted By:</b>	
<b>Name</b>	<b>Organization</b>
John Hecht	P&G
Kyle Sala	KDP