



## IFPRI BRIEF TEMPLATE

Check One:    Project                       Review                       Collaboration  
                    Workshop                       Other

<b>Descriptive Title</b>	Modeling of dry classifier integration and efficiency
<b>Working Title</b>	Classifier modeling
<b>Technical Area</b>	Systems, size reduction, dry powder flow
<b>Date</b>	22-June-2021
<b>Short Description</b>	<p>Classification is an integral part of many dry milling systems including fluidized-bed jet mills, spiral jet mills, impact mills and continuous ball mills. Classifiers include air classifiers for fine particle sizes and mesh screening for coarser sizes. IFPRI members seek an updated review relating to the integration of classifiers in processing circuits, with attention on advances in classifier modeling and integration in a process flowsheet, e.g., a milling-classifier circuit.</p> <p>IFPRI's previous work in this area goes back to the comprehensive review of Richard Klimpel (1996), jet-milling project by Dodds et al (1998), and grinding control by Leschonski (2000).</p> <p>Current interest seeks to use the review as a basis for a new research project on classification in context of flow aids, grinding aids, and hygroscopicity (ability of a powder to take up water vapor influencing in use batch composition variations and processes seasonally).</p>
<b>Objectives</b>	The review should cover modeling of classifiers and mill-classifier integration – i.e., models include transport between classifier and classifier. Models are ideally suitable for predictive process control and system optimization from both production (i.e., throughput, energy utilization) and product (i.e., control of cut size) perspectives.
<b>Scope</b>	<p>Integrated systems comprising:</p> <ul style="list-style-type: none"> <li>• Mills (optionally other processes): fluidized-bed jet mills, spiral jet mills, impact mills, continuous ball mills, dryers/granulators, etc.; and</li> <li>• Classifiers, depending on particle size: air classifiers/separators (wheel, cyclone), vibratory screeners.</li> </ul>

<b>Recommended Contractors (2 or 3)</b>		
Name	Institution	Email Address
Karl-Ernst Wirth	Erlangen	karl-ernst.wirth@fau.de
Weber, Alfred Peter	Clausthal	weber@mvt.tu-clausthal.de

<b>Submitted By:</b>	
Name	Organization
P. Mort / W. Peukert / S. Watano / M. Murtagh	IFPRI consultants, associates
W. Hendrickson	IFPRI / Aveka