# IFPRI BRIEF TEMPLATE

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

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| **Descriptive Title** | Collaboration: Karen Daniels & Prabhu Nott on non-local rheology |
| **Working Title**[1] | Non-local rheology of dry flows: from experiments to practical model |
| **Technical Area**[2] | Dry Systems |
| **Date** | June 22, 2021 |
| **Short Description** | Collaboration between Daniels and Nott to compare experimental data and repair non-local rheology models with dilatancy and wall effects |
| **Objectives** | Repair models of non-local rheology with dilatancy and wall effects |
| **Scope** | As an IFPRI grantee, Karen Daniels has produced detailed data on the kinematics and stresses in sheared granular flows. Her data showed that the non-local rheology of Kamrin must be repaired to capture the pervasive role of boundaries. Prabhu Nott has recently published an alternative approach that accounts for dilatancy. He is also currently working on experiments and model of screw feeders. This collaboration grant would facilitate the efforts of Daniels and Nott to elucidate (1) the effects of walls on the kinematics, and (2) the coupling between density and shear rate (dilatancy). |

| **Recommended Contractors (2 or 3)** | | |
|---|---|---|
| **Name** | **Institution** | **Email Address** |
| Karen Daniels | NC State University | kdaniel@ncsu.edu |
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| **Submitted By:** | |
|---|---|
| **Name** | **Organization** |
| Michel Louge | IFPRI consultant, dry systems |
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| Jarrod Hart | Imerys |
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[1] Title used in meeting agendas and file archives
[2] One or more from the following list: W = wet systems; D = dry systems; F = particle formation; SR = size reduction; M = modeling; SE = systems engineering