

Table 1 Commodity suitability records for *Tribolium castaneum*

| Commodity                    | Trait    | Suitability | Source                    |
|------------------------------|----------|-------------|---------------------------|
| acorn ground                 | dev      | u           | Imura 1991                |
| adzuki bean ground           | dev      | u           | Imura 1991                |
| almonds*                     | pop      | s           | Rajput et al. 2016        |
| almond flour                 | dev, fec | u           | Gerken and Campbell 2020  |
| amaranth flour               | dev, fec | u           | Gerken and Campbell 2020  |
| anise*                       | dev, fec | s           | Al-Iraqi and Abdulla 2012 |
| aniseed flour                | dev      | u           | Punj 1967                 |
| arrow root flour             | dev      | u           | Mukerji and Sinha 1953    |
| atta flour                   | dev, fec | s           | Wong and Lee 2011         |
| barley cracked               | pop      | s           | Sinha 1969                |
| barley flour                 | dev, fec | s           | Gerken and Campbell 2020  |
| barley flour                 | dev      | s           | Mukerji and Sinha 1953    |
| barley flour                 | dev, fec | s           | Naseri et al. 2017        |
| barley flour                 | dev      | s           | Pant and Dang 1969        |
| barley flour                 | dev      | s           | Punj 1967                 |
| barley ground                | fec      | s           | Filipek 1971              |
| bay leaf                     | dev, fec | s           | Al-Iraqi and Abdulla 2012 |
| bean flour                   | dev      | u           | Fabres et al. 2014        |
| bean flour, French           | dev      | u           | Srivastava et al. 1973    |
| biscuit                      | dev      | m           | Hamed and Khattak 1985    |
| biscuit                      | pop      | m           | Rustamani et al. 2014     |
| biscuit, cabin               | dev      | u           | Odeyemi et al. 2005       |
| biscuit, cream cracker       | dev      | u           | Odeyemi et al. 2005       |
| biscuit, digestive           | dev      | u           | Odeyemi et al. 2005       |
| biscuit, glucose             | dev      | u           | Odeyemi et al. 2005       |
| biscuit, hobnobs             | dev      | u           | Odeyemi et al. 2005       |
| biscuit, okin                | dev      | u           | Odeyemi et al. 2005       |
| biscuit, peanut              | dev      | u           | Odeyemi et al. 2005       |
| black gram flour (urd)       | dev      | u           | Punj 1967                 |
| black gram flour (urd)       | dev      | m           | Srivastava et al. 1973    |
| breadfruit flour             | dev      | u           | Astuti et al. 2020        |
| broad bean                   | fec      | u           | Sinha and Muir 1977       |
| broad bean crushed           | fec      | s           | Sinha and Muir 1977       |
| buckwheat flour              | dev, fec | s           | Gerken and Campbell 2020  |
| buckwheat ground             | dev      | s           | Filipek 1971              |
| cardamom*                    | dev, fec | s           | Al-Iraqi and Abdulla 2012 |
| cashew nuts*                 | pop      | s           | Rajput et al. 2016        |
| cassava chips*               | dev      | s           | Nwana 1993                |
| cassava flour                | dev, fec | u           | Gerken and Campbell 2020  |
| cassava meal*                | dev      | s           | Ajayi and Rahman 2006     |
| cellulose                    | dev      | u           | Pant and Dang 1969        |
| chickpea flour (Bengal gram) | dev, fec | s           | Gerken and Campbell 2020  |

|                                |          |   |                           |
|--------------------------------|----------|---|---------------------------|
| chickpea flour (Bengal gram)   | dev      | u | Pant and Dang 1969        |
| chickpea flour (Bengal gram)   | dev      | s | Punj 1967                 |
| cinnamon*                      | dev, fec | s | Al-Iraqi and Abdulla 2012 |
| clove                          | dev, fec | s | Al-Iraqi and Abdulla 2012 |
| clover seed                    | dev      | m | Sinha 1972                |
| clover seed ground             | dev      | s | Sinha 1972                |
| clover seed ground             | fec      | u | Sinha 1972                |
| coconut flour                  | dev, fec | u | Gerken and Campbell 2020  |
| cocoyam chips*                 | dev      | s | Nwana 1993                |
| copra powder                   | dev      | u | Punj 1967                 |
| coriander powder               | dev      | u | Punj 1967                 |
| coriander*                     | dev, fec | s | Al-Iraqi and Abdulla 2012 |
| corn flake                     | pop      | m | Rustamani et al. 2014     |
| cottonseed*                    | dev, fec | u | Ahmad et al. 2012         |
| cottonseed flour               | dev, fec | u | Ahmad et al. 2012         |
| cottonseed flour               | dev      | u | Punj 1967                 |
| cottonseed kibbled             | dev, fec | u | Ahmad et al. 2012         |
| cowpea cracked                 | dev      | s | Nwana 1993                |
| cowpea cracked (blackeyed pea) | pop      | u | LeCato and McCray 1973    |
| cowpea flour                   | dev      | m | Fabres et al. 2014        |
| cowpea flour                   | dev, fec | s | Naseri et al. 2017        |
| cowpea flour                   | dev      | s | Pant and Dang 1969        |
| cumin*                         | dev, fec | s | Al-Iraqi and Abdulla 2012 |
| cumin powder                   | dev      | u | Punj 1967                 |
| custard powder                 | dev, fec | u | Wong and Lee 2011         |
| distillers dried grain course  | dev, fec | s | Fardisi et al. 2013       |
| distillers dried grain fine    | dev, fec | s | Fardisi et al. 2013       |
| flax seed*                     | dev      | s | Sinha 1972                |
| flax seed ground               | dev, fec | s | Sinha 1972                |
| fungus*                        | dev      | s | Imura 1991                |
| ginger*                        | dev, fec | s | Al-Iraqi and Abdulla 2012 |
| gram flour                     | dev, fec | s | Hamed and Khattak 1985    |
| groundnut burger               | dev      | u | Komolafe et al. 2014      |
| groundnut cake                 | dev      | u | Komolafe et al. 2014      |
| groundnut cookies              | dev      | u | Komolafe et al. 2014      |
| hemp                           | dev      | s | Filipek 1971              |
| honeycomb                      | dev      | u | Imura 1991                |
| hungry rice (fonio)            | dev, pop | s | Gueye and Delobel 1999    |
| hyacinth bean flour            | dev      | m | Srivastava et al. 1973    |
| jojoba seed meal               | dev, fec | u | Cline and Highland 1986   |
| jojoba seed                    | dev, fec | u | Cline and Highland 1986   |
| juar flour                     | dev      | s | Lal and Singh 1966        |
| lentil flour                   | dev      | m | Pant and Dang 1969        |
| lentil flour                   | dev      | m | Srivastava et al. 1973    |
| lentil flour                   | dev      | s | Yadav and Sing 1985       |
| lentil flour, red              | pop      | s | Nandi et al. 1990         |

|                            |          |      |                          |
|----------------------------|----------|------|--------------------------|
| linseed powder             | dev      | u    | Punj 1967                |
| maize*                     | dev      | s    | Imura 1991               |
| maize*                     | pop      | s    | LeCato and McCray 1973   |
| maize bran                 | dev      | s    | Oosthuizen 1945          |
| maize bran                 | fec      | s, m | Oosthuizen 1945          |
| maize cracked              | pop      | s    | LeCato and McCray 1973   |
| maize cracked              | dev      | s    | Nwana 1993               |
| maize cracked              | dev      | s    | Skourti et al. 2020      |
| maize cracked              | fec      | m    | Skourti et al. 2020      |
| maize crushed              | dev      | s    | Khalifa and Badawy 1955  |
| maize flour*               | dev      | u    | Astuti et al. 2020       |
| maize flour*               | dev, fec | s    | Gerken and Campbell 2020 |
| maize flour*               | dev      | s    | Imura 1991               |
| maize flour*               | dev      | s    | Kayode et al. 2014       |
| maize flour*               | dev, fec | s    | Khalifa and Badawy 1955  |
| maize flour*               | dev      | s    | Lal and Singh 1966       |
| maize flour*               | dev, fec | s    | Naseri et al. 2017       |
| maize flour*               | dev, fec | s    | Oosthuizen 1945          |
| maize flour*               | dev      | s    | Pant and Dang 1969       |
| maize flour*               | dev      | s    | Punj 1967                |
| maize flour*               | dev      | s    | Sattigi et al. 1995      |
| maize flour*               | dev      | s    | Via 1991                 |
| maize flour*               | dev, fec | u    | Wong and Lee 2011        |
| maize grit (Somovita)      | dev      | s    | Ajayi and Rahman 2006    |
| maize hominy chop          | dev      | s    | Oosthuizen 1945          |
| maize hominy chop          | fec      | s, m | Oosthuizen 1945          |
| maize meal*                | dev      | s    | Ajayi and Rahman 2006    |
| maize meal*                | pop      | s    | LeCato and McCray 1973   |
| maize mealie rice          | dev      | s    | Oosthuizen 1945          |
| maize mealie rice          | fec      | s, m | Oosthuizen 1945          |
| maize no. 1 mixed          | dev, fec | s    | Oosthuizen 1945          |
| maize, purple              | dev      | s    | Astuti et al. 2020       |
| maize, white               | dev      | s    | Astuti et al. 2020       |
| maize no. 1 white          | dev, fec | s    | Oosthuizen 1945          |
| maize samp                 | dev      | s    | Oosthuizen 1945          |
| maize samp                 | fec      | s, m | Oosthuizen 1945          |
| maize, yellow              | dev      | s    | Astuti et al. 2020       |
| maize yellow unsifted meal | dev, fec | s    | Oosthuizen 1945          |
| milk powder*               | dev      | m    | Hamed and Khattak 1985   |
| milk powder, skim *        | dev      | u    | Punj 1967                |
| milled rice dust           | dev      | u    | Arthur et al. 2019       |
| millet*                    | dev, pop | s    | Gueye and Delobel 1999   |
| millet*                    | dev      | s    | Roorda et al. 1982       |
| millet*                    | dev      | s    | Sinha 1972               |
| millet dehulled            | dev, pop | s    | Gueye and Delobel 1999   |
| millet flour               | dev, fec | s    | Gerken and Campbell 2020 |

|                             |          |   |                           |
|-----------------------------|----------|---|---------------------------|
| millet flour                | dev      | s | Kayode et al. 2014        |
| millet flour                | dev      | s | Khair 2002                |
| millet flour                | dev, fec | s | Naseri et al. 2017        |
| millet flour (arraw)        | dev, pop | s | Gueye and Delobel 1999    |
| millet flour (arraw)        | dev      | s | Roorda et al. 1982        |
| millet flour (pearl)        | dev      | s | Pant and Dang 1969        |
| millet flour, pearl (bajra) | dev      | s | Punj 1967                 |
| millet, ground              | dev      | s | Filipek 1971              |
| millet, ground              | dev, fec | s | Sinha 1972                |
| millet meal                 | dev      | s | Ajayi and Rahman 2006     |
| millet semolina (sankhal)   | dev, pop | s | Gueye and Delobel 1999    |
| mint*                       | dev, fec | s | Al-Iraqi and Abdulla 2012 |
| mothbean flour              | dev      | s | Pant and Dang 1969        |
| mothbean flour              | dev      | s | Srivastava et al. 1973    |
| mung papads savory          | pop      | m | Chander et al. 1990       |
| mung wadian savory          | pop      | m | Chander et al. 1990       |
| mungbean flour (green gram) | dev      | s | Pant and Dang 1970        |
| mungbean flour (green gram) | dev      | u | Astuti et al. 2020        |
| mungbean flour (green gram) | dev      | s | Lal and Singh 1966        |
| mungbean flour (green gram) | dev      | s | Pant and Dang 1969        |
| mungbean flour (green gram) | dev      | s | Punj 1967                 |
| mungbean flour (green gram) | dev      | s | Srivastava et al. 1973    |
| mushroom, dried*            | dev, fec | s | Filipek 1971              |
| mustard seed                | dev      | u | Sinha 1972                |
| mustard seed powder         | dev      | u | Punj 1967                 |
| mustard seed, ground        | dev, fec | u | Sinha 1972                |
| oat cracked                 | pop      | s | Sinha 1969                |
| oat flour                   | dev, fec | s | Gerken and Campbell 2020  |
| oat flour                   | dev      | s | Punj 1967                 |
| oat flour                   | dev      | s | Via 1991                  |
| oat, rolled*                | fec      | s | Filipek 1971              |
| paddy rice dust             | dev      | u | Arthur et al. 2019        |
| paddy*                      | dev      | s | Nadeem et al. 2011        |
| parsley, dried              | dev      | m | Filipek 1971              |
| parsley, dried              | fec      | u | Filipek 1971              |
| pea flour                   | dev      | m | Pant and Dang 1969        |
| pea flour                   | dev      | s | Srivastava et al. 1973    |
| pea powder                  | dev      | m | Punj 1967                 |
| peanut*                     | dev      | m | Filipek 1971              |
| peanut*                     | dev      | m | Howe 1956                 |
| peanut*                     | dev      | u | Imura 1991                |
| peanut*                     | pop      | u | LeCato and McCray 1973    |
| peanut*                     | pop      | s | Rajput et al. 2016        |
| peanut, broken              | dev      | s | Urs and Mookerjee 1966    |
| peanut cracked              | pop      | u | LeCato and McCray 1973    |
| peanut flour                | dev      | s | Punj 1967                 |

|                                        |          |   |                           |
|----------------------------------------|----------|---|---------------------------|
| peanut meal*                           | pop      | u | LeCato and McCray 1973    |
| pecan cracked inshell*                 | dev, fec | m | Shufran et al. 2013       |
| pecan meat*                            | dev, fec | s | Shufran et al. 2013       |
| pepper, black*                         | dev, fec | u | Al-Iraqi and Abdulla 2012 |
| pepper, red*                           | dev, fec | u | Al-Iraqi and Abdulla 2012 |
| pepper, tailed ( <i>Piper cubeba</i> ) | dev, fec | s | Al-Iraqi and Abdulla 2012 |
| pigeonpea flour                        | dev      | m | Pant and Dang 1969        |
| pigeonpea flour                        | dev      | s | Srivastava et al. 1973    |
| pop rice                               | dev, fec | s | Hamed and Khattak 1985    |
| potato flour                           | dev, fec | u | Gerken and Campbell 2020  |
| potato flour                           | dev, fec | u | Wong and Lee 2011         |
| quinoa flour                           | dev, fec | s | Gerken and Campbell 2020  |
| raisins*                               | dev      | u | Punj 1967                 |
| raisins*                               | dev      | u | Imura 1991                |
| rapeseed (canola)*                     | dev      | s | Loschiavo and Lamb 1985   |
| rapeseed (canola)*                     | dev      | s | Sinha 1972                |
| rapeseed (canola)*                     | pop      | s | Sinha 1976                |
| rapeseed ground                        | dev      | s | Sinha 1972                |
| rapeseed ground                        | fec      | u | Sinha 1972                |
| rat, fresh minced                      | dev      | u | Imura 1991                |
| rat, moldy minced                      | dev      | s | Imura 1991                |
| rice                                   | dev      | s | Naik et al. 2016          |
| rice cracked                           | pop      | u | LeCato and McCray 1973    |
| rice polished                          | pop      | u | LeCato and McCray 1973    |
| rice bran*                             | dev      | s | Astuti et al. 2020        |
| rice bran*                             | dev      | s | Arthur et al. 2019        |
| rice bran*                             | dev      | s | Imura 1991                |
| rice flour*                            | dev      | s | Arthur et al. 2019        |
| rice flour*                            | dev      | u | Astuti et al. 2020        |
| rice flour*                            | dev, fec | s | Gerken and Campbell 2020  |
| rice flour*                            | dev      | s | Khair 2002                |
| rice flour*                            | dev, fec | s | Khalifa and Badawy 1955   |
| rice flour*                            | dev, fec | s | Naseri et al. 2017        |
| rice flour*                            | dev      | s | Pant and Dang 1969        |
| rice flour*                            | dev      | s | Punj67                    |
| rice flour*                            | dev      | s | Sattigi et al. 1995       |
| rice flour*                            | dev      | s | Via 1991                  |
| rice flour*                            | dev, fec | m | Wong and Lee 2011         |
| rice meal*                             | pop      | u | LeCato and McCray 1973    |
| rice, black                            | dev      | s | Astuti et al. 2020        |
| rice, brown                            | dev      | s | Imura 1991                |
| rice, brown                            | dev      | s | Nadeem et al. 2011        |
| rice, brown ground                     | dev      | s | Imura 1991                |
| rice, milled*                          | dev      | u | Arthur et al. 2019        |
| rice, milled*                          | dev      | s | Imura 1991                |
| rice, milled*                          | dev      | s | Nadeem et al. 2011        |

|                         |          |   |                           |
|-------------------------|----------|---|---------------------------|
| rice, milled broken     | dev      | s | Arthur et al. 2019        |
| rice, red               | dev      | s | Astuti et al. 2020        |
| rice, sticky            | dev      | u | Astuti et al. 2020        |
| rice, white             | dev      | m | Astuti et al. 2020        |
| rice, milled whole      | dev      | s | Arthur et al. 2019        |
| roselle                 | dev, fec | s | Al-Iraqi and Abdulla 2012 |
| rough rice hulls        | dev      | u | Arthur et al. 2019        |
| rye flour               | dev, fec | s | Gerken and Campbell 2020  |
| safflower, broken       | pop      | s | Gill and Strong 1964      |
| safflower seed*         | pop      | u | Gill and Strong 1964      |
| safflower seed meal     | pop      | s | Gill and Strong 1964      |
| sago flour*             | dev      | u | Astuti et al. 2020        |
| sardine dried ground    | dev      | u | Imura 1991                |
| self-rising flour       | dev, fec | m | Wong and Lee 2011         |
| sesame seed (til seed)* | dev      | s | Urs and Mookerjee 1966    |
| sesamum powder          | dev      | s | Punj 1967                 |
| silkworm pupae ground   | dev      | s | Imura 1991                |
| sorghum*                | dev, fec | s | Ahmad et al. 2012         |
| sorghum*                | dev      | s | Meagher et al. 1982       |
| sorghum bran            | dev      | s | Arthur et al. 2020        |
| sorghum cracked         | dev      | s | Meagher et al. 1982       |
| sorghum 10% cracked     | dev      | s | Meagher et al. 1982       |
| sorghum flour (jowar)   | dev, fec | s | Ahmad et al. 2012         |
| sorghum flour (jowar)   | dev      | s | Arthur et al. 2020        |
| sorghum flour (jowar)   | dev, fec | s | Gerken and Campbell 2020  |
| sorghum flour (jowar)   | dev      | s | Kayode et al. 2014        |
| sorghum flour (jowar)   | dev      | s | Khair 2002                |
| sorghum flour (jowar)   | dev      | s | Meagher et al. 1982       |
| sorghum flour (jowar)   | dev      | s | Naik et al. 2016          |
| sorghum flour (jowar)   | dev, fec | s | Naseri et al. 2017        |
| sorghum flour (jowar)   | dev      | s | Pant and Dang 1969        |
| sorghum flour (jowar)   | dev      | s | Punj67                    |
| sorghum flour (jowar)   | dev      | s | Sattigi et al. 1995       |
| sorghum flour (jowar)   | dev, fec | s | Shazali and Smith 1986    |
| sorghum grit course     | dev      | s | Arthur et al. 2020        |
| sorghum grit fine       | dev      | s | Arthur et al. 2020        |
| sorghum kibbled         | dev, fec | s | Ahmad et al. 2012         |
| sorghum meal*           | dev      | s | Ajayi and Rahman 2006     |
| sorghum red dogs        | dev      | s | Arthur et al. 2020        |
| sorghum shorts          | dev      | s | Arthur et al. 2020        |
| soybean*                | pop      | u | LeCato and McCray 1973    |
| soybean cracked         | pop      | s | LeCato and McCray 1973    |
| soybean flour full fat* | dev      | u | Mickel and Standish 1947  |
| soybean flour low fat*  | dev      | m | Mickel and Standish 1947  |
| soybean flour*          | dev      | s | Astuti et al. 2020        |
| soybean flour*          | dev, fec | s | Naseri et al. 2017        |

|                             |          |      |                           |
|-----------------------------|----------|------|---------------------------|
| soybean flour*              | dev      | s    | Pant and Dang 1969        |
| soybean grit course low fat | dev      | m    | Mickel and Standish 1947  |
| soybean grit fine low fat   | dev      | m    | Mickel and Standish 1947  |
| soybean ground*             | dev      | m    | Imura 1991                |
| soybean meal*               | dev, fec | m    | Cox-Simms78               |
| spelt flour                 | dev, fec | s    | Gerken and Campbell 2020  |
| starch                      | dev, fec | m    | Hamed and Khattak 1985    |
| sugar*                      | dev      | u    | Punj 1967                 |
| sunflower seed*             | dev      | s    | Sinha 1972                |
| sunflower seed*             | pop      | s    | Sinha 1976                |
| sunflower seed ground*      | dev      | s    | Imura 1991                |
| sunflower seed ground*      | dev, fec | s    | Sinha 1972                |
| tapioca flour*              | dev      | u    | Astuti et al. 2020        |
| tapioca flour*              | dev, fec | u    | Wong and Lee 2011         |
| tapioca flour*              | dev      | m    | Vaivanijskul 1973         |
| tapioca flour*              | fec      | s    | Vaivanijskul 1973         |
| teff                        | pop      | s    | McFarlane and Dobie 1972  |
| teff flour                  | dev, fec | s    | Gerken and Campbell 2020  |
| thyme                       | dev, fec | s    | Al-Iraqi and Abdulla 2012 |
| triticale flour             | dev, fec | s    | Naseri et al. 2017        |
| turmeric powder*            | dev      | u    | Punj67                    |
| urd wadian savory           | pop      | m    | Chander et al. 1990       |
| walnut*                     | dev      | m    | Filipek 1971              |
| walnut*                     | pop      | s    | Rajput et al. 2016        |
| wheat*                      | dev, fec | s    | Ahmad et al. 2012         |
| wheat*                      | dev, fec | s    | Gerken and Campbell 2020  |
| wheat*                      | pop      | s    | LeCato and McCray 1973    |
| wheat*                      | pop      | s    | McFarlane and Dobie 1972  |
| wheat*                      | dev      | s    | Naik et al. 2016          |
| wheat*                      | pop      | m    | Pande et al. 1988         |
| wheat*                      | pop      | s    | Rajput et al. 2016        |
| wheat*                      | dev      | s    | Shafique et al. 2006      |
| wheat*                      | dev, fec | s    | Shufron et al. 2013       |
| wheat*                      | dev, fec | s    | White 1987                |
| wheat bran                  | dev      | s    | Oosthuizen 1945           |
| wheat bran                  | fec      | s, m | Oosthuizen 1945           |
| wheat bran (pollard)*       | dev, fec | s    | Filipek 1971              |
| wheat bran (pollard)*       | dev      | s    | Hamed and Khattak 1985    |
| wheat bran (pollard)*       | pop      | m    | Hassan et al. 2017        |
| wheat bran (pollard)*       | dev      | s    | Khalifa and Badawy 1955   |
| wheat bran (pollard)*       | dev      | s    | Shafique et al. 2006      |
| wheat bran (pollard)*       | dev      | s    | Imura 1991                |
| wheat broken                | pop      | s    | Pande et al. 1988         |
| wheat cracked               | pop      | s    | LeCato and McCray 1973    |
| wheat cracked               | pop      | s    | Sinha 1969                |
| wheat cracked               | dev      | s    | Skourti et al. 2020       |

|                            |          |      |                          |
|----------------------------|----------|------|--------------------------|
| wheat cracked              | fec      | m    | Skourti et al. 2020      |
| wheat crushed              | dev      | s    | Khalifa and Badawy 1955  |
| wheatfeed                  | dev      | s    | Howe 1956                |
| wheat flour*               | dev, fec | s    | Ahmad et al. 2012        |
| wheat flour*               | dev      | s    | Astuti et al. 2020       |
| wheat flour*               | dev      | s    | Fabres et al. 2014       |
| wheat flour*               | dev, fec | s    | Filipek 1971             |
| wheat flour*               | dev, fec | s    | Hamed and Khattak 1985   |
| wheat flour*               | pop      | m    | Hassan et al. 2017       |
| wheat flour*               | dev      | s    | Imura 1991               |
| wheat flour*               | dev      | s    | Kayode et al. 2014       |
| wheat flour*               | dev      | s    | Khair 2002               |
| wheat flour*               | dev, fec | s    | Khalifa and Badawy 1955  |
| wheat flour*               | dev      | s    | Lal and Singh 1966       |
| wheat flour*               | dev      | s    | Mukerji and Sinha 1953   |
| wheat flour*               | dev      | s    | Naik et al. 2016         |
| wheat flour*               | pop      | s    | Nandi et al. 1990        |
| wheat flour*               | dev, fec | s    | Naseri et al. 2017       |
| wheat flour*               | dev      | s    | Odeyemi et al. 2005      |
| wheat flour*               | dev, fec | s    | Oosthuizen 1945          |
| wheat flour*               | pop      | s    | Pande et al. 1988        |
| wheat flour*               | dev      | s    | Pant and Dang 1969       |
| wheat flour*               | dev      | s    | Punj67                   |
| wheat flour*               | pop      | s    | Rustamani et al. 2014    |
| wheat flour*               | dev      | s    | Sattigi et al. 1995      |
| wheat flour*               | dev      | s    | Shafique et al. 2006     |
| wheat flour*               | dev      | s    | Via 1991                 |
| wheat flour*               | dev, fec | s    | Wong and Lee 2011        |
| wheat flour*               | dev      | s    | Yadav and Sing 1985      |
| wheat flour, maida         | pop      | m    | Hassan et al. 2017       |
| wheat flour, maida         | dev      | s    | Punj67                   |
| wheat flour, maida         | dev      | s    | Shafique et al. 2006     |
| wheat flour no. 1 unsifted | dev, fec | s    | Oosthuizen 1945          |
| wheat flour + yeast        | dev      | s    | Fardisi et al. 2013      |
| wheat flour + yeast        | dev      | s    | Filipek 1971             |
| wheat flour + yeast        | dev      | s    | Imura 1991               |
| wheat flour + yeast        | dev      | s    | Mickel and Standish 1947 |
| wheat flour + yeast        | dev      | s    | Naseri et al. 2017       |
| wheat flour + yeast        | dev      | s    | Punj67                   |
| wheat flour + yeast        | dev      | s    | Srivastava et al. 1973   |
| wheat flour + yeast        | dev      | s    | Via 1991                 |
| wheat flour, suji          | dev      | s    | Punj67                   |
| wheat flour, suji          | dev      | s    | Shafique et al. 2006     |
| wheat germ                 | dev      | s    | Oosthuizen 1945          |
| wheat germ                 | fec      | s, m | Oosthuizen 1945          |
| wheat kibbled              | dev, fec | s    | Ahmad et al. 2012        |



|                     |          |   |                        |
|---------------------|----------|---|------------------------|
| wheat meal*         | dev      | s | Ajayi and Rahman 2006  |
| wheat meal*         | pop      | s | LeCato and McCray 1973 |
| wheat middlings     | dev, fec | s | Oosthuizen 1945        |
| wheat pollard       | dev, fec | s | Oosthuizen 1945        |
| wheat semolina      | fec      | s | Filipek 1971           |
| wheat semolina      | pop      | m | Hassan et al. 2017     |
| wheat semolina      | dev, fec | s | Oosthuizen 1945        |
| wheat semolina      | pop      | s | Rustamani et al. 2014  |
| wheat semolina      | dev, fec | s | Skourti et al. 2020    |
| wheat sharps        | dev, fec | s | Oosthuizen 1945        |
| wheat shorts        | dev, fec | s | Hamed and Khattak 1985 |
| winged bean, ground | dev      | u | Imura 1991             |
| yam chips*          | dev      | s | Zakka et al. 2013      |
| yam chips*          | dev      | s | Nwana 1993             |
| yam flour*          | dev      | s | Zakka et al. 2013      |
| yam meal            | dev      | s | Ajayi and Rahman 2006  |
| yeast, brewer's*    | dev      | s | Punj 1967              |

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\* Suitability records for commodities with infestation record in Vaivanijskul (1973), Hagstrum et al. (2013), Hashem et al. (2014), Mailafiya et al. (2014), Ogedegbe and Edoreh (2014) and Cecile et al. (2015). Commodities are rated as s = suitable, m = marginal and u = unsuitable for development, reproduction or population growth. Commodities are scored as marginal if insects may be unlikely to produce another generation because the developmental time of insects on them is twice the average developmental time on a suitable commodity, the number of offspring is less than 10% of that on a suitable commodity or the survival rate of offspring is less than 10% of that on a suitable commodity.