THE GLOBAL STANDARD FOR LIVESTOCK DATA

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TITLE OF THE PRESENTATION

Authentication of grazing-related farming practices - Improvement and evaluation of a risk-based selection strategy for on-site farms inspections in the Netherlands

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Authentication of grazing-related farming practices - Improvement and evaluation of a risk-based selection strategy for on-site farms inspections in the Netherlands

ABSTRACT

In a growing number of countries, dairy products produced from meadow milk find increasingly consumer preference and bring added market value. However, authentication of grazing-related farming practices through on-site farm inspections are costly, time consuming, and are often only performed on a limited number of farms. Moreover, such inspections only provide snapshot information on farming practices. Ideally, the emphasis with inspections should lie with farms where there is reasonable doubt as to whether grazing requirements are sufficiently met. Research has shown that the composition of meadow milk differs from non-meadow milk and that learning algorithms are capable of distinguishing among them based on evaluation of milk infrared spectra. What has received little attention, however, is how such algorithms can be turned into practically useful tools for monitoring and assuring authenticity of grazing-related farming practices. Here we demonstrate how learning algorithms applied to routinely analyzed milk samples can be used to devise a risk-based selection strategy suggesting which farms to inspect and when. In a field study, we evaluated our selection strategy in light of the contemporary selection regime in the Netherlands, in which only a fraction of the farms are selected in a risk-based manner. The results show that the percentage of on-site inspections with a negative outcome (e.g., insufficient evidence of grazing) is higher among farms selected by our new strategy compared to a random selection of farms. Moreover, our selection strategy performed comparably to current risk-based selections. However, using algorithms that rely on routinely analyzed milk samples permit a continuous

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monitoring of all dairy farms claiming the delivery of meadow milk. Our work will be discussed in light of the benefits but also the many challenges that arise during development, validation, and implementation of an objective risk-based selection strategy for the authentication of grazing-related farming practices. :

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