

**Supplementary Table S2.** Complete list of additional variables included in only the BRD2 dataset.

<b>Variable Category</b>	<b>Variable</b>	<b>Description</b>
<b>Cohort level</b>	Number of pulls on the same day	Count of additional pulls for any reason in that cohort on the day of BRD2
	Number of pulls last week	Count of pulls for any reason in that cohort in the last 7 days before BRD2
	Updated number of treatments to date	Updated count of treatments for any reason in that cohort since it arrived on the feedyard
	Updated total deads in cohort	Updated cumulative count of mortalities for any reason in a cohort up to BRD2
	Updated total rails in cohort	Updated cumulative count of rails for any reasons in a cohort up to BRD2
<b>Individual animal level</b>	Year of BRD2	Year the animal received its second treatment for BRD
	Quarter of BRD2	Quarter of the year that the animal received its second treatment for BRD (1 = Jan. – Mar., 2 = Apr. – Jun., 3 = July. – Sept., 4 = Oct. – Dec.)
	Month of BRD2	Month of the year that the animal received its second treatment for BRD
	Day of BRD2	Day of the week that the animal received its second treatment for BRD (1 = Mon., 2 = Tues., 3 = Wed., 4 = Thurs., 5 = Fri., 6 = Sat., 7 = Sun.)
	Treated for BRD2 on a _____	Binary variables (1 = yes, 0 = no) for each day of the week an animal could have received its second treatment for BRD
	Treated for BRD2 on a holiday	Binary variable (1 = yes, 0 = no) for whether or not an animal received its second

	treatment for BRD on a holiday; includes all federal holidays
Second event DOF	Days spent on feed until second treatment for BRD (date of arrival – event date)
Second event temperature	Rectal temperature obtained at second treatment for BRD
Second event weight	Weight at second treatment for BRD
Updated treated for GI previously	Binary variable (1 = yes, 0 = no) for whether or not an animal was treated for digestive issues prior to the second treatment for BRD
Updated treated for MS previously	Binary variable (1 = yes, 0 = no) for whether or not an animal was treated for musculoskeletal issues prior to the second treatment for BRD
Updated treated for repro previously	Binary variable (1 = yes, 0 = no) for whether or not an animal was treated for reproductive issues prior to the second treatment for BRD
Updated treated for other previously	Binary variable (1 = yes, 0 = no) for whether or not an animal was treated for any other issue prior to the second treatment for BRD
ADG at BRD2	Calculated average daily gain at event date ((event weight – arrival weight)/event DOF)
Drug class	The antimicrobial class which was used as first treatment for BRD (beta lactam, fluoroquinolone, macrolide, tetracycline, phenicol)
Drug name	The specific antimicrobial used at first treatment for BRD (ceftiofur, danofloxacin, enrofloxacin,

		florfenicol, gamithromycin, oxytetracycline, tildipirosin, tilmicosin, tulathromycin)
	Days between treatments	The number of days between first and second treatment for BRD (second event date – first event date)
<b>Feedyard level</b>	Updated number of treatments on the same day at feedyard	Count of additional treatments at the yard on the same event date
	Updated number of treatments last week at feedyard	Cumulative count of all treatments at the yard in the last 7 days prior to the event date
	Updated moving averages of treatments	Moving averages of the number of treatments at the feedyard in 3-, 5-, 7-, 14-, 21-, and 28-day increments prior to day of second treatment for BRD
	Updated divergence from moving average	The difference in the event date's number of treatments from each of the increments of moving averages of treatments at the feedyard

BRD2 indicates the second treatment for BRD.