**Table A** PRISMA Checklist item.

|  |  |  |  |
| --- | --- | --- | --- |
| **Section/topic** | **#** | **Checklist item** | **Reported on page #** |
| **TITLE** |  |
| Title | 1 | Prevalence of bovine tuberculosis in dairy cattle in China during 2010–2019: A systematic review and meta-analysis | 1 |
| **ABSTRACT** |  |
| Structured summary | 2 | Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number. | 2-3 |
| **INTRODUCTION** |  |
| Rationale | 3 | Describe the rationale for the review in the context of what is already known. | 4-5 |
| Objectives | 4 | Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS). | 4-5 |
| **METHODS** |  |
| Protocol and registration | 5 | Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number. | 5 |
| Eligibility criteria | 6 | Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale. | 5-7 |
| Information sources | 7 | Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched. | 5-6 |
| Search | 8 | Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated. | 5-6 |
| Study selection | 9 | State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis). | 6-7 |
| Data collection process | 10 | Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators. | 6-7, Table S3 |
| Data items | 11 | List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made. | 6-8 |
| Risk of bias in individual studies | 12 | Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis. | 7-8 |
| Summary measures | 13 | State the principal summary measures (e.g., risk ratio, difference in means). | 7-8 |
| Synthesis of results | 14 | Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I2) for each meta-analysis. | 7-8 |
| Risk of bias across studies | 15 | Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies). | 7, Figure 3, Figure S1-S9, and Table S4 |
| Additional analyses | 16 | Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified. | 7-8, Figure 4, Tables 2 and 4. |
| **RESULTS** |  |  |  |
| Study selection | 17 | Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram. | 8, Figure 1 |
| Study characteristics | 18 | For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations. | Table 1, Table S3 |
| Risk of bias within studies | 19 | Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12). | 15, Figure 3, Figure S1-S9, and Table S4 |
| Results of individual studies | 20 | For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot. | 8, Figure 2, Figure S10-S16 |
| Synthesis of results | 21 | Present results of each meta-analysis done, including confidence intervals and measures of consistency. | 16-17, Tables 2 and 4 |
| Risk of bias across studies | 22 | Present results of any assessment of risk of bias across studies (see Item 15). | 15, Figure 3, Figure S1-S9, and Table S4 |
| Additional analysis | 23 | Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]). | 15, Figure 4, Tables 2 and 4 |
| **DISCUSSION** |  |  |  |
| Summary of evidence | 24 | Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers). | 20-25 |
| Limitations | 25 | Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias). | 26 |
| Conclusions | 26 | Provide a general interpretation of the results in the context of other evidence, and implications for future research. | 26 |
| **FUNDING** |  |  |  |
| Funding | 27 | Describe sources of funding for the systematic review and other support (e.g., supply of data); role of founders for the systematic review. | 27 |

*From:* Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(6): e1000097. doi:10.1371/journal.pmed1000097

For more information, visit: **www.prisma-statement.org**.

**Table B.** The code in R for this meta-analysis.

|  |  |
| --- | --- |
| Logarithmic conversion (PNL) | rate<-transform [m1, log=log(event/n)];  shapiro.test(rate$log) |
| Logit transformation (PLOGIT) | rate<-transform{m1, logit=log[(event/n)/(1-event/n)]};  shapiro.test(rate$logit) |
| Arcsine transformation (PAS) | rate<-transform{m1, arcsin.size=asin[sqrt(event/(n+1))]};  shapiro.test(rate$arcsin) |
| Double-arcsine transformation (PFT) | rate<-transform{m1,darcsin=0.5\*[asin(sqrt(event/(n+1)))+asin((sqrt(event+1)/(n+1)))]};  shapiro.test(rate$darcsin) |
| No transformation (PRAW) | rate<-transform[m1, r= event/n];  shapiro.test(rate$r) |

|  |  |
| --- | --- |
| Forest plots | forest [meta1, xlim=c(-0.2, 0.8)] |
| Funnel chart | funnel (meta1) |
| Egger's test | metabias (meta1, method="linreg") |
| The sensitivity analysis | metainf (meta1, pooled = "random") forest (metainf (meta1, pooled = "random"), xlim=c(0, 0.3)) |
| Subgroup analysis | meta1<-metaprop(event, n, study, data=rate, sm="PLN", incr=0.5, allincr=TRUE, addincr=FALSE, title="", byvar= subgroup title, print.byvar=TRUE) |
| Meta-regression analysis | metareg (meta1, ~covariate title) |

**Table C.** Included studies and quality scores.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Study No.** | **Reference ID** | **No. tested** | **No. positive** | **Prevalence** | **Study design** | **Study purpose clear or not** | **Detailed detection method or not** | **Sampled time clearly or not** | **Four or more risk factors or not** | **Score** | **Study Quality** |
| 1 | Wu et al. (2016) | 2230 | 72 | 3.23% | Cross sectional | Y | Y | Y | Y | 4 | high quality |
| 2 | Xu et al. (2013a) | 5478 | 63 | 1.15% | Cross sectional | Y | Y | Y | Y | 4 | high quality |
| 3 | Xu et al. (2013b) | 769 | 16 | 2.08% | Cross sectional | Y | Y | Y | Y | 4 | high quality |
| 4 | Han et al. (2014) | 1678 | 502 | 29.92% | Cross sectional | Y | Y | Y | Y | 4 | high quality |
| 5 | Yu (2018) | 326651 | 183 | 0.06% | Cross sectional | Y | N | Y | Y | 3 | high quality |
| 6 | He et al. (2014) | 97 | 28 | 28.87% | Cross sectional | Y | Y | Y | Y | 4 | high quality |
| 7 | Zhao et al. (2019b) | 31240 | 111 | 0.36% | Cross sectional | Y | N | Y | Y | 3 | high quality |
| 8 | Liu et al. (2015) | 4702 | 131 | 2.79% | Cross sectional | Y | Y | Y | Y | 4 | high quality |
| 9 | Yang et al. (2019) | 15453 | 6 | 0.04% | Cross sectional | Y | N | Y | Y | 3 | high quality |
| 10 | Xu et al. (2010) | 2818 | 29 | 1.03% | Cross sectional | Y | Y | Y | N | 3 | high quality |
| 11 | Guan et al. (2013) | 77368 | 173 | 0.22% | Cross sectional | Y | N | Y | Y | 3 | high quality |
| 12 | La et al. (2015) | 170203 | 103 | 0.06% | Cross sectional | Y | N | Y | Y | 3 | high quality |
| 13 | Zhao et al. (2012) | 239 | 106 | 44.35% | Cross sectional | Y | Y | N | Y | 3 | high quality |
| 14 | Yang (2011) | 10308 | 54 | 0.52% | Cross sectional | Y | Y | Y | Y | 4 | high quality |
| 15 | Li et al. (2014) | 7357 | 122 | 1.66% | Cross sectional | Y | Y | Y | Y | 4 | high quality |
| 16 | Yuan (2014) | 59 | 37 | 47.46% | Cross sectional | Y | Y | N | Y | 3 | high quality |
| 17 | Hao et al. (2010) | 1677 | 9 | 0.54% | Cross sectional | Y | Y | Y | Y | 4 | high quality |
| 18 | Duan et al. (2015) | 184 | 3 | 1.63% | Cross sectional | Y | Y | N | Y | 3 | high quality |
| 19 | Zhao et al. (2017) | 1995 | 33 | 1.65% | Cross sectional | Y | N | Y | Y | 3 | high quality |
| 20 | Xie (2013) | 225 | 3 | 1.33% | Cross sectional | Y | Y | Y | Y | 4 | high quality |
| 21 | Li et al. (2012) | 57389 | 298 | 0.52% | Cross sectional | Y | Y | Y | Y | 4 | high quality |
| 22 | Tian et al. (2017) | 1523 | 3 | 0.20% | Cross sectional | Y | Y | Y | Y | 4 | high quality |
| 23 | Gu et al. (2015) | 25613 | 292 | 1.14% | Cross sectional | Y | Y | Y | Y | 4 | high quality |
| 24 | Wu et al. (2012) | 262 | 6 | 2.29% | Cross sectional | Y | N | Y | Y | 3 | high quality |
| 25 | Shao et al. (2016) | 470 | 74 | 15.74% | Cross sectional | Y | Y | N | N | 2 | medium quality |
| 26 | Zhang et al. (2016) | 600 | 280 | 46.67% | Cross sectional | Y | Y | N | Y | 3 | high quality |
| 27 | Yan et al. (2014) | 20223 | 105 | 0.52% | Cross sectional | Y | Y | Y | Y | 4 | high quality |
| 28 | Jiang et al. (2014b) | 860 | 88 | 10.23% | Cross sectional | Y | N | Y | Y | 3 | high quality |
| 29 | Huang et al. (2016) | 17520 | 0 | 0.00% | Cross sectional | Y | Y | Y | Y | 4 | high quality |
| 30 | Wu et al. (2017) | 314 | 25 | 7.96% | Cross sectional | Y | Y | Y | Y | 4 | high quality |
| 31 | Xu et al. (2014) | 889156 | 7708 | 0.87% | Cross sectional | Y | Y | Y | Y | 4 | high quality |
| 32 | Shen et al. (2013) | 205 | 13 | 0.49% | Cross sectional | Y | Y | N | Y | 3 | high quality |
| 33 | Wu (2015) | 11515 | 83 | 0.72% | Cross sectional | Y | Y | Y | Y | 4 | high quality |
| 34 | Lu et al. (2014) | 115 | 15 | 13.04% | Cross sectional | Y | Y | N | Y | 3 | high quality |
| 35 | Wang (2017） | 724 | 0 | 0.00% | Cross sectional | Y | Y | Y | Y | 4 | high quality |
| 36 | Wang et al. (2011b） | 47085 | 199 | 0.42% | Cross sectional | Y | N | Y | Y | 3 | high quality |
| 37 | Sa (2013) | 58238 | 203 | 0.35% | Cross sectional | Y | Y | N | Y | 3 | high quality |
| 38 | Sang et al. (2012) | 512 | 3 | 0.59% | Cross sectional | Y | Y | Y | Y | 4 | high quality |
| 39 | Shi et al. (2018b) | 56668 | 532 | 0.94% | Cross sectional | Y | N | Y | Y | 3 | high quality |
| 40 | Tan et al. (2015) | 150 | 1 | 0.67% | Cross sectional | Y | Y | N | Y | 3 | high quality |
| 41 | Qu et al. (2012) | 73018 | 73 | 0.10% | Cross sectional | Y | Y | Y | Y | 4 | high quality |
| 42 | Ma (2017) | 90 | 0 | 0.00% | Cross sectional | Y | Y | Y | Y | 4 | high quality |
| 43 | Zhang (2016) | 2478 | 110 | 4.44% | Cross sectional | Y | N | N | Y | 2 | medium quality |
| 44 | Zhao et al. (2019a) | 12417 | 169 | 1.36% | Cross sectional | Y | N | Y | Y | 3 | high quality |
| 45 | Lin (2017) | 3270 | 40 | 1.22% | Cross sectional | Y | Y | Y | Y | 4 | high quality |
| 46 | Li (2010) | 473 | 44 | 9.30% | Cross sectional | Y | Y | N | Y | 3 | high quality |
| 47 | Liu et al. (2012) | 13308 | 60 | 0.45% | Cross sectional | Y | Y | Y | Y | 4 | high quality |
| 48 | Lei (2014) | 419 | 2 | 0.48% | Cross sectional | Y | Y | Y | Y | 4 | high quality |
| 49 | Li (2014) | 2112 | 119 | 5.63% | Cross sectional | Y | Y | N | Y | 3 | high quality |
| 50 | Kong (2015) | 47 | 0 | 0.00% | Cross sectional | Y | Y | N | N | 2 | medium quality |
| 51 | Gao (2018) | 715 | 4 | 0.56% | Cross sectional | Y | Y | Y | Y | 4 | high quality |
| 52 | Zhou (2013) | 2624 | 35 | 1.33% | Cross sectional | Y | N | N | Y | 2 | medium quality |
| 53 | Hu (2010) | 7608 | 64 | 0.84% | Cross sectional | Y | N | Y | Y | 3 | high quality |
| 54 | Situ et al. (2016) | 2993 | 0 | 0.00% | Cross sectional | Y | Y | Y | Y | 4 | high quality |
| 55 | Liu et al. (2019) | 950 | 22 | 2.32% | Cross sectional | Y | Y | N | Y | 3 | high quality |
| 56 | Jiang et al. (2014a) | 9355 | 223 | 2.38% | Cross sectional | Y | Y | Y | Y | 4 | high quality |
| 57 | Wang et al. (2015) | 2204 | 60 | 2.72% | Cross sectional | Y | N | N | Y | 2 | medium quality |
| 58 | Cheng (2010) | 126696 | 892 | 0.70% | Cross sectional | Y | N | Y | Y | 3 | high quality |
| 59 | Du (2017) | 3547 | 12 | 0.34% | Cross sectional | Y | Y | Y | Y | 4 | high quality |
| 60 | Ai (2013) | 6323 | 18 | 0.28% | Cross sectional | Y | Y | Y | Y | 4 | high quality |
| 61 | Chang (2011) | 67 | 0 | 0.00% | Cross sectional | Y | Y | N | Y | 3 | high quality |
| 62 | Sun et al. (2016) | 892 | 18 | 2.02% | Cross sectional | Y | Y | Y | Y | 4 | high quality |
| 63 | Shi et al. (2018a) | 2106 | 26 | 1.23% | Cross sectional | Y | N | N | Y | 2 | medium quality |
| 64 | Chen et al. (2016) | 187 | 46 | 24.60% | Cross sectional | Y | Y | Y | Y | 4 | high quality |
| 65 | Zhang (2018) | 2005 | 33 | 1.65% | Cross sectional | Y | N | Y | Y | 3 | high quality |
| 66 | Chen (2017) | 840 | 38 | 4.52% | Cross sectional | Y | Y | Y | Y | 4 | high quality |
| 67 | Xiong et al. (2011) | 2075 | 20 | 0.96% | Cross sectional | Y | Y | Y | Y | 4 | high quality |
| 68 | Song (2019) | 327 | 12 | 3.67% | Cross sectional | Y | N | N | Y | 2 | medium quality |
| 69 | Li et al. (2016) | 1380 | 10 | 0.72% | Cross sectional | Y | Y | Y | Y | 4 | high quality |
| 70 | Zhang et al. (2019) | 173 | 36 | 20.81% | Cross sectional | Y | Y | Y | Y | 4 | high quality |
| 71 | Ye (2019) | 20478 | 10 | 0.05% | Cross sectional | Y | Y | Y | Y | 4 | high quality |
| 72 | La (2010) | 4000 | 22 | 0.55% | Cross sectional | Y | N | Y | Y | 3 | high quality |
| 73 | Zhang (2010) | 418 | 4 | 0.96% | Cross sectional | Y | Y | Y | Y | 4 | high quality |
| 74 | Xu et al. (2017) | 3367 | 367 | 5.76% | Cross sectional | Y | Y | N | N | 2 | medium quality |
| 75 | He et al (2017) | 606 | 24 | 3.96% | Cross sectional | Y | N | Y | Y | 3 | high quality |
| 76 | Zhang et al. (2013) | 121 | 1 | 0.83% | Cross sectional | Y | N | N | Y | 2 | medium quality |
| 77 | Jin et al. (2011) | 12245 | 893 | 7.29% | Cross sectional | Y | Y | Y | Y | 4 | high quality |
| 78 | Bian et al. (2010) | 3702 | 37 | 1.00% | Cross sectional | N | Y | Y | Y | 3 | high quality |
| 79 | Song et al. (2019) | 8000 | 29 | 0.36% | Cross sectional | Y | Y | Y | Y | 4 | high quality |
| 80 | Yang et al. (2014) | 100 | 17 | 17.00% | Cross sectional | Y | Y | N | Y | 3 | high quality |
| 81 | Yang et al. (2013) | 300 | 4 | 1.00% | Cross sectional | Y | Y | N | N | 2 | medium quality |
| 82 | Wang et al. (2011a) | 111003 | 273 | 0.25% | Cross sectional | Y | N | Y | Y | 3 | high quality |
| 83 | Zhu et al. (2011) | 182 | 123 | 21.98% | Cross sectional | Y | Y | N | N | 2 | medium quality |
| 84 | Wu et al. (2014b) | 856 | 17 | 1.99% | Cross sectional | Y | Y | Y | Y | 4 | high quality |
| 85 | Zhou et al. (2014) | 3000 | 138 | 4.60% | Cross sectional | Y | N | N | Y | 2 | medium quality |
| 86 | Chen (2011) | 60 | 1 | 1.67% | Cross sectional | Y | N | N | Y | 2 | medium quality |
| 87 | Wu et al. (2014a) | 1200 | 24 | 2.00% | Cross sectional | Y | Y | N | Y | 3 | high quality |
| 88 | Wang et al. (2012) | 5060 | 54 | 1.07% | Cross sectional | Y | Y | Y | Y | 4 | high quality |
| 89 | Yang et al. (2017) | 483 | 10 | 2.07% | Cross sectional | Y | Y | N | Y | 3 | high quality |
| 90 | Yang et al. (2015) | 84 | 12 | 14.29% | Cross sectional | Y | Y | N | Y | 3 | high quality |
| 91 | Li (2013) | 800 | 0 | 0.00% | Cross sectional | Y | N | Y | Y | 3 | high quality |
| 92 | Lv (2011) | 599 | 7 | 1.17% | Cross sectional | Y | N | Y | Y | 3 | high quality |
| 93 | Hao et al. (2014) | 574 | 20 | 3.48% | Cross sectional | Y | Y | Y | Y | 4 | high quality |
| 94 | Zhang et al. (2018) | 990 | 156 | 15.76% | Cross sectional | Y | Y | N | N | 2 | medium quality |
| 95 | Bing (2013) | 1187 | 286 | 24.09% | Cross sectional | Y | Y | Y | Y | 4 | high quality |
| 96 | Chen et al. (2014) | 59150 | 35 | 0.06% | Cross sectional | Y | N | Y | Y | 3 | high quality |
| 97 | Zhang (2015) | 1429 | 57 | 3.99% | Cross sectional | Y | N | Y | Y | 3 | high quality |
| 98 | Deng et al. (2014) | 10200 | 96 | 0.94% | Cross sectional | Y | N | N | Y | 2 | medium quality |
| 99 | Hu et al. (2011) | 7013 | 300 | 4.28% | Cross sectional | Y | N | Y | Y | 3 | high quality |
| 100 | Ran (2018) | 5598 | 16 | 0.29% | Cross sectional | Y | Y | Y | Y | 4 | high quality |

Y\*: Yes; N\*: No.

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**Table D.** Egger’s test for publication bias.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| slope | bias | se. bias | t | df | p-value |
| 0.059 | 6.494 | 1.610 | 4.303 | 98 | 0.0001 |

**Table E.** Normal distribution test for the normal rate and the different conversion of the normal rate.

|  |  |  |
| --- | --- | --- |
|  | W | P |
| PRAW | 0.493 | < 2.2e-16 |
| PLN | NaN | NA |
| PLOGIT | NaN | NA |
| PAS | 0.747 | 7.691e-12 |
| PFT | 0.732 | 3.194e-12 |

PRAW: original rate, PLN, logarithmic conversion, PLOGIT: logit transformation, PAS: arcsine transformation,

PFT: Freeman-Tukey double arcsine transformation, NaN: meaningless number, NA: missing data.