1. Introduction

Operation roads are prone to road erosion due to rain. For this reason, a cross drain is installed. sedan deposits in the transverse drainage ditch. The surface flow will overflow the transverse drainage and road erosion will expand.

Maintenance of the drainage crossing drainage ditch is important, but there is no maintenance interval or standard. In this study, we aim to improve the efficiency of maintenance by clarifying the influence of rainfall and installation environment on sedimentary sand.

2. Study Site and methods

Study Site

The study site is Shinshu University Experimental Forest, the area is 227.9ha, the altitude is 900m ~ 1,200m, the precipitation is about 1300mm / year, and the average road network density is 91.13m / ha. Measure sediment volume in the cross drain at every rainfall event (1.0mm / 10min or more).

*The one-year probability rainfall in this area is 18.4mm/hr (Nagano Prefecture, 2017), and the rainfall intensity set as the standard is normal rainfall.

Measurement method

Cross drain structure and measurement range. The height was measured every 10CM and the sediment was estimated from the average cross section.

3. Result and Discussion

Rainfall event

The result of multiplying the hourly rainfall by the total rainfall showed the strongest correlation. On the other hand, there was variation in sediment volume in each cross drain.

Installation environment

Granite, low slope vegetation, and low road surface vegetation tended to have a lot of sediment.

Installation conditions

There was no clear relationship with installation conditions such as installation angle, terrain slope, and road slope.

4. Conclusion

Conditions for priority maintenance

- If there is heavy rainfall for a short time
- Cross drain of route including granite
- Cross drain on routes with less slope and vegetation

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